

RESEARCH UPDATE

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Welcome to the Banco de España RESEARCH UPDATE

The Banco de España is pleased to announce the release of the Fall 2018 issue of its *Research Update*. The *Update* aims to inform both academic and policy-oriented economists and financial specialists about publications, conferences, and other research activities at the Banco de España.

As usual, this issue includes several feature articles summarizing policy-relevant findings from recent Banco de España projects in diverse areas of research. First, D. Kirpichev and E. Moral-Benito evaluate the effects of non-tariff protectionist measures, showing that they significantly reduce export growth and negatively affect firms' productivity growth. Second, I. Argimón, C. Bonner, R. Correa, P. Duijm, J. Frost, J. de Haan, L. de Haan and V. Stebunovs, as part of the latest project of the International Banking Research Network, compare how banks and insurance companies in the US, Spain and Netherlands transmit home-country monetary policy internationally. They conclude that the direction and strength of the effect depend on the degree of centralization of the bank's internationalization strategy. Third, P. Cuadrado, A. Lacuesta, M. L. Matea and F. Palencia-González argue that the recent increase in the number of independent dealers relative to brand dealers affected prices and mark-ups in the Spanish gas market. Next, A. Fuertes, R. Gimeno and J. Marqués employ a methodology to determine inflation expectations from zero-coupon yield curves of nominal bonds for Chile, Mexico, Brazil and Colombia, finding that for Brazil and Colombia expectations are more volatile and less anchored. Fifth, G. Fiorentini, A. Galesi, G. Pérez-Quirós, and E. Sentana propose an accurate estimation procedure to measure natural interest rates. They document a rise and fall in natural rates for several advanced economies in the last five decades, which is mostly attributed to demographic changes. Finally, O. Bover, L. Hospido, and E. Villanueva provide an overview of the methods and main results of the new Survey of Financial Competences fielded in 2016 and 2017, designed to measure the knowledge and understanding of financial concepts by the Spanish adult population.

Moreover, this *Update* reports on other Banco de España research news, such as recent publications and current conferences, and profiles three newly hired researchers who are joining the staff of the Directorate General of Economics, Statistics and Research at the Banco de España.

We highlight these and other research developments at the Banco de España in hopes that they will interest the broader research community in Spain and internationally and thereby contribute to an improved understanding of economic policy.

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Research Committee,
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FEATURES

THE COSTS OF TRADE PROTECTIONISM: EVIDENCE FROM SPANISH FIRMS AND NON-TARIFF MEASURES

SUMMARY OF BANCO DE ESPAÑA WORKING PAPER N° 1814

DMITRI KIRPICHEV AND ENRIQUE MORAL-BENITO

The rise in non-tariff protectionist measures has been associated to the weakness in global trade over the last few years. We investigate the effect of non-tariff barriers (NTBs) on export growth over the period 2009-2013 using administrative data at the firm-product-destination level in Spain. According to our findings, non-tariff protectionist measures significantly reduce export growth at the product-destination level. Moreover, NTBs also hinder export growth at the firm level and negatively affect other firm outcomes such as productivity growth. In contrast, the impact of liberalizing non-tariff measures is not statistically significant.

The emergence of trade protectionism

The recent rise in trade protectionism threats has coped the policy debates all around the world. Episodes like Brexit in Europe or the Trump's election in the United States are examples of how protectionist feelings are gaining momentum under the idea that trade protection will bring more prosperity. Despite the ongoing introduction of tariffs on goods traded between China and the United States, increases in tariff rates are now more difficult to implement than ever due to mechanisms like the Most Favored Nation clause of the World Trade Organization. With this mechanism, members of the WTO cannot discriminate between trading partners and must grant trade advantages equivalent to those of the "most favored nation". As a result, since the Global Financial Crisis countries have resorted to the so-called non-tariff measures in order to protect their national industries (WTO, 2009).

These trade policies are murkier in the sense that they are much more difficult to detect (Baldwin and Evenett, 2009). Protectionist actions based on non-tariff measures (henceforth, NTM) include those policies which hinder international competition and grant benefits to local producers that do not involve a rise in tariffs. Examples of those are sanitary and technical requirements, which oblige imported products to abide

by national standards regarding health and environmental regulations. Other examples of such policies include subsidies for exporting firms, requirements to buy local inputs, tax-based incentives to export, or the implementation of import and export quotas.

According to the Global Trade Alert database (<https://www.globaltradealert.org/>), important trade partners of the Spanish economy, such as Germany, France, China, Brazil or Russia, are among the countries that have implemented the largest amount of protectionist NTMs since the Global Financial Crisis. In addition, the products that were targeted by these measures represent important shares of Spanish exports. For instance, vehicles, electrical machinery, pharmaceutical products or plastic products have been hit by NTMs. All in all, a total of 1,340 NTMs that affected Spanish exports were implemented over the period 2009-2013. Out of these, 1,118 were protectionist measures, while only 222 were liberalizing ones (where liberalizing measures include removals of protectionist measures and new policies that reduce trade barriers). These figures suggest that rising protectionism in the form of NTMs might be hindering Spanish exports, given the relevance of the trading partners implementing these policies as well as the products targeted.

The microeconomic effects of the so-called murkier protectionism

In Kirpichev and Moral-Benito (2018), we identify the presence of non-tariff protectionist measures and quantify their impact on exports of Spanish firms over the period 2009-2013. For that purpose, we combine the Global Trade Alert database at the product-country level with micro-level data on Spanish exporting firms by product-country from the Banco de España's Balance of Payments.

The contribution of our paper to the literature is threefold: (i) we analyze the effects of protectionist episodes consisting of increases in non-tariff measures,

	(1) Over time	(2) Across countries	(3) Across products
Non-tariff protectionist dummy	-0.048***	-0.031***	-0.003
(s.e.)	0.017	0.007	0.046
R-sq	0.24	0.29	0.43
# observations	132,381	129,807	43,855
# firms	12,564	8,771	5,170
# countries	187	196	145
# products	118	117	118
Fixed effects (FE):			
Firm-country-product	Yes	No	No
Firm-product-year	No	Yes	No
Firm-country-year	No	No	Yes
Firm	Yes	No	No
Country	No	Yes	No
Product	No	No	Yes

NOTES: Dependent variable is export growth at the firm-country-product level. Standard errors in parentheses are clustered at the product-destination level. Sample covers 2009-2013.

while most of the existing literature analyzes liberalizing episodes consisting of tariff decreases (Lileeva and Trefler, 2010; Topalova and Khandelwal, 2011; Pavcnik, 2002; Amiti and Konings, 2007); (ii) we analyze the effects of those measures on a country affected by them (Spain in our case), while most of the existing papers analyze the effects on local firms from the country implementing the measures; (iii) our results suggest that trade protectionism in the form of non-tariff measures have indeed reduced the exports and productivity of Spanish exporters.

In order to identify the effect of non-tariff measures on export performance at the product-destination level, we consider the following specification:

$$\Delta \ln X_{ip,t} = \beta NTM_{pd,t-1} + FE + \varepsilon_{ip,t} \quad (1)$$

where X refers to export volume of product p to country d from firm i in year t . $NTM_{pd,t-1}$ is a dummy variable that takes the value 1 if there is at least one non-tariff measure affecting product p and country d and implemented in year $t-1$. The measure can be either protectionist or liberalizing. First, we include protectionist policies separately and then we repeat the exercise for liberalizing measures (results do not vary when we regress them jointly). Finally, different sets of fixed effects (FE) are included in the specifications in order to consider alternative strategies to enhance identification.

To be more concrete, we consider three types of specifications. First, we exploit within time variation by

including firm-product-country fixed effects. Identification is thus based on a diff-in-diff strategy that compares the change in exports in the same firm-product-country triplet before and after the non-tariff protectionist measure. Second, we include firm-product-year fixed effects and use a diff-in-diff strategy comparing the change in exports for the same firm-product-year triplet across destinations (countries) with and without NTMs implemented against Spain in the same year. Third, we include firm-country-year fixed effects so that identification is based on between-product variation for the same firm-country-year triplet. We also add some relevant covariates to these configurations such as tariff barriers in order to control for possible confounding factors.

Table 1 shows the results for these three different configurations of fixed effects. In column (1) we report the estimates for variation over time. The result is that the introduction of a protectionist NTM reduces average export growth by 4.8 pp. Column (2) uses variation across destinations. Firm export growth is 3.1 pp. lower on average in countries that have implemented protectionist NTMs than in countries that have not adopted such measures. All these effects are statistically significant and have the expected sign. Finally, we find non-significant effects in column (3), where we exploit variation across products for the same firm-country-year triplet. This lack of effect might reflect product complementarities in exports at the firm level that are not present across countries. In other words, the supply chain is harder to adjust across products than across

	(1) Exports growth	(2) Output growth	(3) Employment growth	(4) TFP growth
Non-tariff protectionist dummy	-0.045***	-0.016***	-0.003	-0.027***
(s.e.)	0.003	0.006	0.005	0.01
Non-tariff liberalizing dummy	0.050	0.005	0.014	0.000
(s.e.)	0.051	0.008	0.009	0.015
R-sq	0.21	0.47	0.55	0.61
# observations	59,477	58,485	58,886	55,791
# firms	17,963	17,963	17,791	16,919
Firm fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes

NOTES: Dependent variable is export growth in column (1), output growth in column (2), employment growth in column (3) and TFP growth in column (4) at the firm level. Sample covers 2009-2013. Standard errors in parenthesis are clustered at the firm level.

countries. For instance, imagine a firm exports a basket of goods and one of them is subject to a protectionist NTM. Then, it will be more costly for the firm to increase exports of the other goods and reduce those of the protected one than exporting the protected good to some other country. Indeed, there are much less firms exporting several products to the same country in our data, only 5,170 firms against 8,771 exporting the same product to several countries.

In the paper we perform additional exercises. We repeat the estimation for liberalizing measures. The effect of a removal of a protectionist NTM is smaller and not statistically significant. This finding is consistent with the presence of non-linearities in the impact of NTMs depending on their nature, protectionist versus liberalizing. Also, if non-tariff measures are implemented in a broader package containing tariff measures, omitting the latter would bias our estimates. However, the inclusion of changes in tariff rates in the regression does not alter significantly our estimates. Turning to the different types of NTMs, we find particularly strong negative effects of protectionist policies such as financial measures and government procurement regulations. In addition, we analyze the persistence of NTMs by substituting our dependent variable based on annual growth in Table 1 by cumulative growth over 1, 2 and 3 years. We find that protectionist measures have a stronger effect over 2 years, while in the third year the effect vanishes. This evidence suggests that NTMs are costly in the short run but, overall, the firms that survive learn how to adapt to the new scenario.

Finally, if firms are able to undo the NTM shocks by increasing their exports to other product-destination pairs, the negative impact on export growth at the firm-product-destination level reported in Table 1

would vanish at the firm level. In order to investigate this possibility, we consider overall firm export growth as our dependent variable and exposure to non-tariff measures at the firm level as the regressor of interest. In particular, we compute firm-level exposure to NTMs as an export-weighted average of the product-destination non-tariff dummy. The resulting regressor ranges between zero and one and can be interpreted as the share of firm's exports exposed to the implementation of non-tariff measures.¹ A set of firm controls as well as firm and year fixed effects are also included. In addition to export growth at the firm level, we also consider three alternative firm-level outcomes as our dependent variable of interest, namely, employment, output growth, and productivity growth.

Table 2 shows the results. In column (1) we find a negative and statistically significant effect on export growth at the firm level for protectionist measures and not significant effects for liberalizing measures. In column (2) we repeat the same exercise for output growth, finding a sizeable negative and statistically significant effect of protectionist NTMs. On average, the introduction of a protectionist NTM reduces output growth by 1.6 pp. Column (3) reports the same specification for employment growth, where we do not find statistically significant effects. Finally, column (4) shows a negative effect on TFP growth coming from protectionist NTMs. Overall, this evidence reinforces the apparent negative effect of protectionist NTMs on exporters' performance and the non-linear effect of non-tariff measures.

¹ The average share in our sample is 7.2% while the median is 0 and the 90th percentile is 22.2%.

Conclusion

By combining non-tariff measures affecting Spain at the product-country level with firm-product-country information on exports for Spanish firms over the years 2009-2013, we provide evidence in favor of the hypothesis that non-tariff protectionist measures significantly reduce export growth. The estimated reduction in exports due to non-tariff barriers ranges between 37 and 74% of the average export growth by firm-product-destination in our sample. In contrast, the impact of liberalizing measures is not statistically significant. Moreover, firm exposure to non-tariff barriers is associated to lower productivity growth (which is traditionally used in the literature as a proxy for consumer welfare).

Two main conclusions emerge from our analysis. On the one hand, the rise of anti-globalization episodes like Trump's threats to free trade or Brexit is a legitimate source of concern given the sizable costs that protectionist non-tariff policies may imply. On the other hand, the conventional "symmetry" assumption made when estimating the effects of protectionism measures using liberalization-based elasticities may not be appropriate since the cost of protectionist measures might be larger in magnitude than the gains from trade liberalization.

REFERENCES

- AMITI, M., and J. KONINGS (2007). "Trade Liberalization, Intermediate Inputs, and Productivity: Evidence from Indonesia." *American Economic Review*, 97 (5): 1611-1638.
- BALDWIN, R., and S. EVENETT eds. (2009). "The Collapse of Global Trade, Murky Protectionism, and the Crisis: Recommendations for the G20", London: CEPR, <https://voxeu.org/epubs/cepr-reports/collapse-global-trade-murky-protectionism-and-crisis-recommendations-g20>.
- KHANDELWAL, A., and P. TOPALOVA (2011). "Trade Liberalization and Firm Productivity: the Case of India," *The Review of Economics and Statistics*, 93(3): 995-1009.
- KIRPICHEV, D., and E. MORAL-BENITO (2018). "The costs of trade protectionism: evidence from Spanish firms and non-tariff measures", Banco de España Working Papers No. 1814.
- LILEEVA, A., and D. TREFLER (2010). "Improved Access to Foreign Markets Raises Plant-level Productivity for Some Plants", *Quarterly Journal of Economics*, 125(3): 1051-1099.
- PAVCNIK, N. (2002). "Trade liberalization, Exit and Productivity Improvements: Evidence from Chilean Plants", *Review of Economic Studies*, 69(1): 245-276.
- WTO (2009). "Overview of Developments in the International Trading Environment".

FINANCIAL INSTITUTIONS' BUSINESS MODELS AND THE GLOBAL TRANSMISSION OF MONETARY POLICY

SUMMARY OF BANCO DE ESPAÑA WORKING PAPER N° 1815

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Using Dutch, Spanish, and U.S. confidential supervisory data this study finds marked heterogeneity in the transmission of monetary policy across banks, insurance companies, and pension funds, across the three banking systems, and across banks within each banking system. While insurance companies and pension funds do not transmit home-country monetary policy internationally, banks do, with the direction and strength of the transmission determined by their business models and balance sheet characteristics. The paper is part of the latest project of the International Banking Research Network.

Introduction

The crisis has provided new arguments and evidence to the debate of the cross-border spillovers of monetary policy. Theoretical and empirical literature has considered, among other aspects, the role of global liquidity, the response of exchange rates or asset prices and the relevance of internationally active financial institutions for the international transmission of monetary shocks.

We analyze the transmission of monetary policy through financial institutions from an outward perspective, exploring how domestic financial institutions adjust their foreign lending to changes in domestic monetary policy, through both their affiliates located in other countries and via direct cross-border lending by headquarters. Specifically, we examine whether banks headquartered in the Netherlands, Spain, and the United States transmit their home country's monetary policy differently to other countries, which banks' characteristics are relevant for the transmission and whether these banks transmit monetary policy differently compared to insurance companies and pensions funds headquartered in the Netherlands. We use supervisory data for financial institutions headquartered in the three countries. We apply a common methodology for each separate country-specific data set and combine only the output, as due to their confidential nature, we cannot share the data. Buch et al. 2018 detail the empirical strategy and refer to the cross-country studies included in the latest project of the International Banking Research Network, of which this research is part.

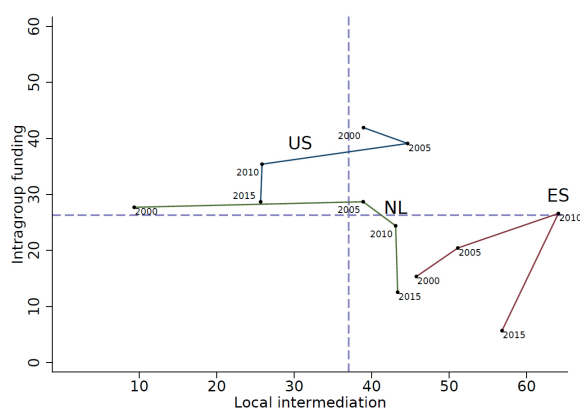
Business models for international activity

The choice of countries in our study is important, as we not only explore how monetary policy transmits internationally, but also assess whether financial institutions with diverse business models react differently to monetary policy. We explore different dimensions of the internationalization strategy that could explain the different responses.

Figure 1, summarizes the business models of the three banking sectors, along two dimensions (Committee on the Global Financial System, 2010). The first dimension is related to banks' management of liquidity across their global offices. Banks that conduct a substantial amount of intragroup funding are classified as centralized. The second dimension is related to the degree of local intermediation conducted by global banks. Banks that perform most of their global operations through cross-border lending follow a more centralized approach, while decentralized banks use subsidiaries or branches (together labelled local affiliates) to conduct their foreign activities. Such a distinction is similar to the approach followed in McCauley et al. (2010) to classify global banks into multinational and international banks.

DEGREE OF BANKS' (DE)CENTRALIZATION

FIGURE 1



NOTE: Intragroup funding is the share of total foreign intragroup liabilities to total liabilities. A higher score indicates a more centralized country. Local intermediation is the minima of local assets and local liabilities for each counterparty country summed over all counterparties and then divided by total foreign claims. A higher score indicates a less centralized country. The vertical and horizontal dashed lines represent the 75th percentile of the historical (since 2000) distribution of the respective variables. The data for this figure are from the BIS International Banking Statistics.

The figure reports measures of intragroup funding and local intermediation for Dutch, Spanish, and U.S. banks at four points in time: 2000:Q4, 2005:Q4, 2010:Q4, and 2015:Q4. At these four points in time, it is clear that the banking sectors of the Netherlands (NL), Spain (ES), and the United States (US) follow different business models to conduct their foreign activities. Spanish banks are mostly located in the lower-right quadrant, with low intragroup funding and high local intermediation, while the U.S. banks are mostly located in the upper left quadrant, with low local intermediation and high intragroup funding. The Dutch banking sector mostly falls in between. These differences in business models may help us explain the reaction of banks located in these countries to monetary policy.

Monetary policy and business model

To test for the relevance of financial institutions' business models on the international transmission of home-country monetary policy, we divide banks according to the type of foreign activities in which they participate. Specifically, we compare banks that mostly operate by lending to foreign residents from the head office to those banks that establish affiliates abroad to cater to their foreign clients. We label the first type of banks "centralized", while the second type are labeled "decentralized".

To formally test our hypothesis, we estimate equations that explain the change in foreign claims of a bank b on a given country j at a given time t ($\Delta Y_{b,j,t}$), using bank-level confidential quarterly reports submitted by banks to the prudential supervisor of the corresponding country (the DNB, the BdE, and the Federal Reserve), covering the period 2000:Q1 to 2014:Q4 for Spanish banks and 2000:Q1 to 2015:Q4 for U.S. and Dutch banks. For insurance companies and pension funds, the data on foreign claims by country is collected by DNB as part of the Dutch balance of payment statistics, which is available at a quarterly frequency over the period 2006:Q1-2015:Q4. We merge this information with quarterly balance sheet reports submitted by financial institutions to their respective supervisors.

Monetary policy is captured by either the nominal policy rate or the shadow rate (Krippner, 2013) for the home country of a given bank (the euro area rates for Dutch and Spanish banks) ($\Delta MP_{t-k}^{domestic}$). Although during most of the period under consideration monetary policy was loosened, there were also periods when policy became more restrictive. For instance, there is a monetary tightening cycle just prior to the Global Financial Crisis (GFC).

To identify the channels of monetary policy transmission for banks, we use the technique introduced by Kashyap and Stein (2000) and later applied by Cetorelli and Goldberg (2012) to the international context. We explore both the lending channel, with variables that may capture funding frictions such as size, and the portfolio channel with frictions that may affect the asset side of banks' balance sheets such as the capital ratio. To identify the effect of monetary policy in the cross-section of banks and specifically the role of banks' business model, we introduce an indicator of bank's centralization ($Decentral_{b,t-4}$). We also include control variables for banks ($X_{b,t-1}$), for domestic macro-financial conditions ($Z_{t-1}^{domestic}$), for destination-country credit demand ($Z_{j,t-1}$) and for global factors (VIX_{t-1}). In particular, we estimate the following equation:

$$\Delta Y_{b,j,t} = \alpha_0 + \sum_{k=0}^K (\alpha_{1,k} \Delta MP_{t-k}^{domestic} + \alpha_{2,k} \Delta MP_{t-k}^{domestic} * Decentral_{b,t-4}) + \alpha_3 Decentral_{b,t-4} + \alpha_4 X_{b,t-1} + \alpha_5 Z_{t-1}^{domestic} + \alpha_6 Z_{j,t-1} + \alpha_7 VIX_{t-1} + f_b + f_j + \varepsilon_{b,j,t}$$

We expect that banks that follow a centralized model are more likely to be affected by domestic monetary policy. In contrast, those that operate mostly through decentralized foreign offices may be less sensitive to changes in domestic monetary policy. In particular, we expect that monetary policy tightening leads to a reduction in both cross-border and local claims for centralized banks. In contrast, we do not have a prior on the total effect of monetary policy on cross-border claims for decentralized banks and we expect no effect on local claims.

Our results show that U.S. banks, which follow a more centralized business model, are more sensitive to domestic monetary policy changes than Dutch and Spanish banks. When we conduct tests to assess the importance of the bank lending channel on these banks, we find that larger U.S. banks increase their foreign exposures as monetary policy tightens. In contrast, monetary policy appears to have a more negative effect on the foreign exposures of the more decentralized Dutch and Spanish banks.

We also test whether banks react to monetary policy through the portfolio channel. We find that U.S. banks with higher capital levels decrease their international exposures as monetary policy tightens. We find similar differences based on capitalization for the Netherlands for cross-border claims, while Spanish banks do not show any significant differences in their reaction to monetary policy across levels of capitalization.

We further analyze the impact of monetary policy on banks by comparing the reaction of centralized

and decentralized institutions to policy rate changes within a country. We find that Dutch and Spanish banks change their international exposures depending on their business models. Decentralized Dutch banks increase their cross-border claims as domestic monetary policy tightens. Similarly, decentralized banks in Spain increase their cross-border and total claims as policy tightens, tilting their portfolios towards foreign claims. It appears that global Spanish banks with foreign affiliates are more willing to increase their cross-border claims as a response to tighter monetary policy, perhaps as a complement to the activities conducted in those foreign offices.

Lastly, we find that insurance companies and pension funds do not change their foreign claims in response to monetary policy changes.

Conclusions

The existence of spillover effects from monetary policy into financial institutions' lending activity across countries affects policy efficiency and financial stability. Bank-specific characteristics and specifically its international business model, as captured by an indicator

of decentralized management, affects how banks international lending adjusts to domestic monetary policy stance.

REFERENCES

- BUCH, C., M. BUSSIERE, L. GOLDBERG and R. HILLS (2018), "The International Transmission of Monetary Policy", NBER Working Papers 24454.
- CETORELLI, N., and L. GOLDBERG (2012). "Banking globalization and monetary transmission", *Journal of Finance* 5, 1811-1843.
- COMMITTEE ON THE GLOBAL FINANCIAL SYSTEM (2010). "Funding patterns and liquidity management of internationally active banks". CGFS Paper No. 39
- KASHYAP, A., and J. STEIN (2000). "What do a million observations on banks say about the transmission of monetary policy?" *American Economic Review*, 90, 407-428.
- KRIPPNER, L. (2013). "Measuring the stance of monetary policy in zero lower bound environments", *Economic Letters*, 118, 135-138.
- MCCAULEY, R., P. MCGUIRE and G. VON PETER (2010). "The architecture of global banking: From international to multinational?", *BIS Quarterly Review*, March.

PRICE STRATEGIES OF INDEPENDENT AND BRANDED DEALERS IN RETAIL GAS MARKET. THE CASE OF A CONTRACT REFORM IN SPAIN

SUMMARY OF BANCO DE ESPAÑA WORKING PAPER Nº 1818

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We analyse how the contract structure between gas stations and the wholesale operator affects price strategies. Using daily data on prices of different gas stations in Spain, and exploiting the introduction of a regional excise duty in gas stations, the paper finds that independent dealers charge lower margins and react more to competition than supplier operated and branded dealers. We use this result to interpret the inexistent reduction in markups that followed an increase in independent stations due to a change in the Spanish regulation that took place in 2013.

Introduction

Between 2011 and 2012 the Euro Area pre-tax gasoline prices peaked from almost 600 euros/000 liter on the 3rd of January 2011 to 800 euros/000 liter on the 27th of August 2012. The increase in Spain was from 622 euros/000 liter to almost 820 euros/000 litre. This raise in prices increased the public concern regarding the competitive behaviour of the retail gas market and whether dealers, especially those more attached to the upstream supplier, were benefiting from positive oil price shocks. In this paper we analyse how price stations with different upstream supply contracts are affected by changes in the marginal cost of nearby competitors. We do so by exploiting the introduction of heterogeneous regional excise duties.

Understanding the price setting behaviour of the retail gasoline market is important because most of the automotive fuel is channelled through the gas station network. Moreover, according to the input output tables, gasoline is an important input in many key sectors such as transportation and electricity. Using the Spanish network of gas stations as a case study to analyse this question is interesting in the international context because (1) historically, station ownership has been very concentrated among upstream suppliers; and (2) Spain reacted to the raise in international oil prices by passing a new regulation with the aim of increasing competition in the retail segment by changing the long lasting relationship between retailers and suppliers.

Pricing strategies in the retail gas sector by type of contract

In order to explore the price setting behaviour of gas retailers in Spain, we exploit a database of daily 95 octane gas prices, as notified by each gas station to the Ministry of Energy, Tourism and the Digital Agenda, covering the period January 1st 2011 to December 31st 2017. Note that gas stations are required to send information on the prices charged, as well as on price changes and gas station closures. Note also that prices are gross of discounts and we have deducted taxes in order to eliminate the possible distortions generated by local tax differences. There are around 10,000 fuel stations distributed along the Spanish territory. Moreover, the database contains information on the type of contract that the gas station has with respect to the major supplier. There are three types of contract arrangements: 1) “Independent” gas stations have no exclusive dealing arrangements with any major supplier; 2) gas stations directly operated to a supplier (“supplier operated”); and 3) “branded” dealers, meaning those managed by an independent operator with an exclusivity contract that guarantees the supply of fuel from one single supplier.

The following equation estimates differences of markups, defined as the pre-tax price of the 95 octane gasoline minus the international wholesale price, by type of contract:

$$p_{i,t} - gas_t = constant + \sum_{j=\{branded, supplier\}} \alpha(j) * contract(j)_{i,t} + \beta comp_{i,t} + \gamma_{i,t} + \epsilon_{i,t}$$

where, $p_{i,t}$ refers to the pre-tax retail gas price in euros per liter of the i station at the t period and gas_t to the wholesale price in international markets. The two dummy variables $contract_j$ are set equal to one when the contract subscribed by the i station corresponds with the type of contract j and their values are zero otherwise. The number of competitors $comp_{i,t}$ is defined as the number of gas stations within a radius of 15 km. In order to capture differences in the demand by location and time we incorporate dummy variables of area and time captured by $\gamma_{i,t}$. Finally, $\epsilon_{i,t}$ is a random error term. In this setting, the constant is the average markup of independent dealers, and average markups of branded and supply operated stations are characterized by $constant + \alpha_j$.

	First Specification	Second Specification	Third Specification	Fourth Specification
STABLE LONG RELATIONSHIPS				
Dependent variable:				
$p_{i,t} - gas_t$				
Competitors _{i,t}	-0.0000548*** (0.000)	-0.0000662*** (0.000)	0.000000887 (0.975)	0.00000587 (0.84)
Contract _{i,t}				
Branded dealer	0.0269746*** (0.000)	0.0277505*** (0.000)	0.0265198*** (0.000)	0.0272814*** (0.000)
Supplier operated dealer	0.0253902*** (0.000)	0.02581*** (0.000)	0.0256511*** (0.000)	0.0261756*** (0.000)
CONSTANT	0.15043741 (a)	0.15059596 (a)	0.1475661*** (0.000)	0.1468385*** (0.000)
Daily fixed effects	Yes	Yes	No	No
Municipality fixed effects	Yes	No	No	No
Zip code fixed effects	No	Yes	No	No
Daily and municipality fixed effects	No	No	Yes	No
Daily and zip code fixed effects	No	No	No	Yes
Number of observations	21,156,573	21,190,843	21,156,573	21,190,843
Adjusted R ²	0.505	0.522	0.637	0.633
Prob > F	0	0	0	0

SOURCE: Author's calculations.

NOTES: Robust p-values standar errors are reported in parenthesis. The asterisks *, ** and *** indicate significance at a confidence level of 90%, 95% and 99%, respectively.

a These constants correspond to the average of predicted values for the dependent variable in the correspondent regression case. Hence, it is not fully comparable with the estimated constants for the others two especifications where there is a baseline for a specific day and a particular geographic zone.

Table 1 shows the results. As it is observed in columns 1 to 4, independent dealers are the ones setting the lowest markups (15 cents/liter in average over the analyzed period), while markups of supplier operated and branded dealers are higher and very similar to each other (around an additional 2.5 cent/liter).

One potential explanation for those lower markups is that independent stations compete more fiercely against other nearby stations. In order to have a clean natural experiment of how competition affect prices, we exploit exogenous changes in marginal costs of actual competitors by different types of gasoline dealers. In particular, we use a discretionary regional excise duty (IVMDH) levied on competing gasoline stations. The IVMDH is an excise duty levied on the volume of fuel sold. It was introduced in 2002 in order to increase the revenues of the regional governments. Since then, regions could decide to establish a tax subject to a ceiling that is currently set at 4.8 cent /liter. Most of the regions only decided to use this possibility during the last recession, as a way to alleviate their fiscal problems. That is the reason why, within a particular

local market, the imposition of this tax is exogenous to local economic conditions, being more generally related to regional fiscal problems. The paper shows that there is enough variation by region and time to identify changes in markups of bordering stations.

We estimate the following equation:

$$p_{i,t} - gas_t = \sum_{j = \{branded, supplier\}} \beta(j) comp_{i,t} * contract(j)_{i,t} + \sum_{j = \{branded, supplier\}} \beta(j) I(comp_{i,t}^{Higher IVMDH}) * Dif_{IVMDH} * contract(j)_{i,t} + \sum_{j = \{branded, supplier\}} \beta(j) I(comp_{i,t}^{Lower IVMDH}) * Dif_{IVMDH} * contract(j)_{i,t} + \mu_i + \delta_t + \epsilon_{i,t}$$

Where $I(comp_{i,t}^{Higher IVMDH})$ is a dummy variable indicating that the station has at least one competitor that faces a fiscal disadvantage and $I(comp_{i,t}^{Lower IVMDH})$ is a dummy indicating that the station has at least one competitor that faces a fiscal advantage. The variable Dif_{IVMDH} indicates the size of the difference in taxes between one region and the other. As a consequence, the coefficients $\beta(j)^+$ and $\beta(j)^-$ identify the percentage of the differential tax relative to that of the competitor that is passed to the consumers via prices. As an example, $\beta(j)^+ = 1$ means that the gas station with a fiscal advantage

charges 100% of the tax differential to their consumers, whereas $\beta(j) = -1$ means that the gas station with fiscal disadvantage reduces its markup by the total amount of the tax-differential.

The first specification in table 2 shows that gas stations that are at the border and have a fiscal disadvantage tend to reduce their markups. The economic magnitude of this decrease is 60% of the size of the imposed tax. These results are consistent with those obtained by Stolper (2016), suggesting that those stations with more

competition tend to reduce the pass through of levied tax. On the other hand, those stations that do not face the levy do not increase markups, since the magnitude of the coefficient is very small.

The second specification repeats the exercise but distinguishing by type of gas station. We observe differences by type of contractual arrangement. In particular, independent stations with a fiscal disadvantage appear to decrease their markups to fully compensate for their higher marginal costs (a coefficient of 1 suggests a 100% decrease of markups). On the other hand, neither supplier operated, nor branded dealers react as much. In particular, supplier operated dealers reduce their markups 51%, whereas branded dealers decrease them by 38%. Finally, regardless of the type of contract, the increase in markups of disadvantage competitors is not relevant quantitatively.

We interpret these results as suggestive evidence that real competition, defined as a change in the actual marginal cost of current competitors, affect all gas stations and especially, those that are independent.

STABLE LONG RELATIONSHIPS

TABLE 2

	First Specification	Second Specification
STABLE LONG RELATIONSHIPS		
Dependent variable:		
$p_{i,t} - gas_t$		
<i>Total competitors</i> _{i,t}	-0.000279*** (0.000)	
Independent dealer		-0.0003942*** (0.000)
Branded dealer		-0.000232*** (0.000)
Supplier operated dealer		-0.0002719*** (0.000)
Competitors with fiscal disadvantage _{i,t}	0.00000215 (0.757)	
Independent dealer		0.0000485*** (0.004.000)
Branded dealer		0.0000439 (0)
Supplier operated dealer		-0.0000429*** (0.000)
<i>Competitors with fiscal advantage</i> _{i,t}	-0.0023408*** (0.000)	
Independent dealer		-0.0025289*** (0.000)
Branded dealer		-0.001867*** (0.000)
Supplier operated dealer		-0.0026567*** (0.000)
Fixed effects in petrol stations	Yes	Yes
Fixed effects in day	Yes	Yes
Number of observations	21,190,762	21,190,762
Adjusted R ²	0.647	0.647
Prob > F	0	0

SOURCE: Author's calculations.

NOTE: Robust p-values standar errors are reported in parenthesis. The asterisks *, ** and *** indicate significance at a confidence level of 90%, 95% and 99%, respectively.

Discussion of recent developments in gasoline markets

We use those results to interpret the effect on prices of a regulation change in Spain that occurred after the increase in oil prices in 2012. As the requirements to open a gas station were eased in 2013, the number of gas stations went up from 8,979 to 9,805 in 2017. This increase is almost fully attributed to new independent stations. Despite this increase, the paper finds that only Spanish independent dealers decreased their markups after 2013, while other dealers increased them. One potential explanation is that the relevant market for different dealers might differ. It might be the case that independent dealers, which were increasing in number (especially in the low cost segment), only compete against other independent dealers while branded and supplier operated dealers compete with each other and are increasingly trying to differentiate their product with respect to the one sold by independent dealers.

EXTRACTION OF INFLATION EXPECTATIONS FROM FINANCIAL INSTRUMENTS IN LATIN AMERICA

SUMMARY OF BANCO DE ESPAÑA WORKING PAPER N° 1819

ALBERTO FUERTES, RICARDO GIMENO AND JOSE MANUEL MARQUÉS

We estimate inflation expectations for several Latin American countries using an affine model that takes as factors the observed inflation and the parameters generated from zero-coupon yield curves of nominal bonds. By implementing this approach, we avoid the use of inflation-linked securities, which are scarce and less liquid in many of these markets, and obtain market measures of inflation expectations free of any risk premium, eliminating potential biases included in other measures such as breakeven rates. We find that inflation expectations in the long-run are fairly anchored in Chile and Mexico, while those in Brazil and Colombia are more volatile and less anchored. We also find that expected inflation increases at longer horizons in Brazil and Chile, while it is decreasing in Colombia and Mexico.

Introduction

Agents' inflation expectations are decisive for shaping households' and firms' decision making. They are also important when implementing monetary policy, especially for inflation-targeting central banks. However, these expectations are not observables, and there are different strategies to capture them. One of those approaches is based on the consensus view of specialist economic forecasters, such as the surveys of professional forecasters. A drawback of these surveys is that they are released relatively infrequently and, thus, the information received has a time lag.¹ Moreover, they only cover a small range of time horizons and, as identified in the literature (Ang et al., 2007; Chan et al., 2013), there is some bias and inertia in their responses. An alternative way of obtaining agents' inflation expectations is to use prices of market-traded financial instruments employed to hedge against inflation such as inflation-linked bonds, inflation swaps and inflation options. An advantage in comparison with surveys is that changes in expectations can be observed almost in real time. This makes it easier to identify the effect of specific events or decisions on inflation expectations. Unfortunately, there are not many markets of inflation-linked securities available for most countries.

¹ In Latin America, several central banks publishes surveys about inflation expectations. For example, the central banks of Chile, Colombia and Mexico publish a monthly survey about inflation expectations; the Bank of Brazil publishes a daily survey.

For example, in Latin American only a few have inflation-linked bonds and there are no markets for inflation options at all. Another problem of obtaining inflation expectations using this approach is the presence of various risk premia, which are included in the prices of the underlying financial assets and which may also vary over time. Due to the lack of inflation-linked securities in Latin American markets, we use an alternative approach developed by Gimeno and Marques (2012) to obtain inflation expectations: an affine model that takes as factors the observed inflation and the parameters generated in the zero-coupon yield curve estimation of nominal bonds. Also, by implementing this approach, we obtain a measure of inflation expectations free of any risk premia, since the model breaks down nominal interest rates as the sum of real risk-free interest rates, expected inflation, and the risk premium.

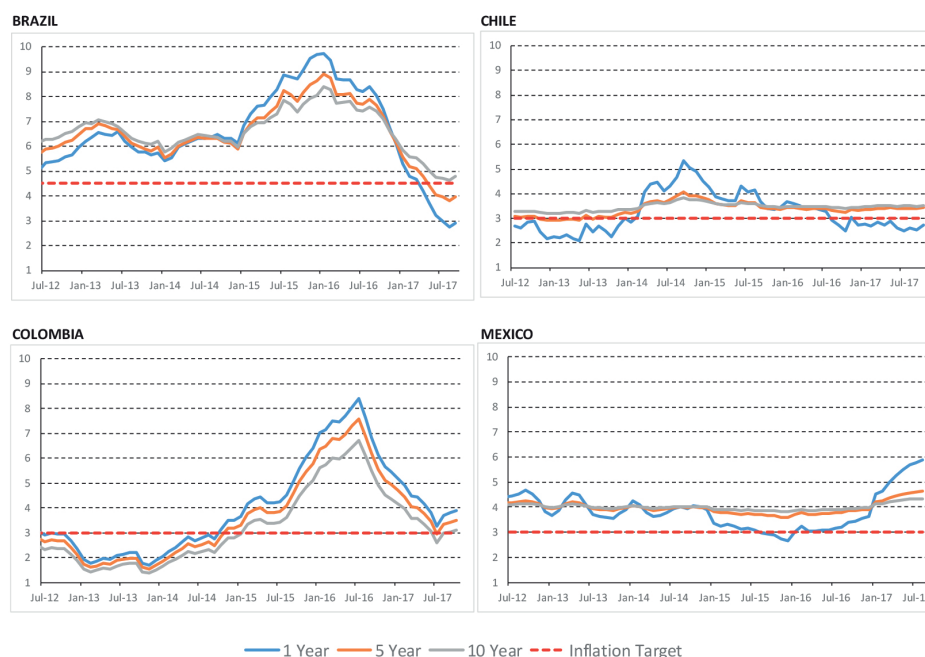
Obtaining inflation expectations from public debt markets

The methodology we implement decomposes nominal interest rates into three components from an affine model of the nominal term structure, incorporating macro-determinants into a multi-factor yield curve model with non-arbitrage opportunities. Interest rates are affine relative to a vector of factors (X_t) that includes inflation rates and exogenously determined factors based on the Nelson–Siegel exponential components of the yield curve (Nelson and Siegel, 1987), in a similar vein to Carriero et al. (2006) and Diebold and Li (2006). In our case, we include the condition of non-arbitrage opportunities along the yield curve and take into account risk-aversion. Taking these two conditions together allows us to decompose nominal interest rates as the sum of real risk-free interest rates, expected inflation and risk premium.

We obtain inflation expectations from a VAR equation which includes the vector of factors X_t . Since vector X_t includes current inflation (π_t), expectations on this variable can be computed from projections of the dynamics of the affine factors in the VAR equation.

$$E_t [X_{t+h}] = (I + \phi + \phi^2 + \dots + \phi^{h-1}) \mu + \phi^h X_t$$

There are several advantages in using this method to obtain inflation expectations. First, there is a large



degree of flexibility, as we can estimate expectations at different horizons. Moreover, we can also compute forward rates, allowing us to estimate, for example, the expected inflation over the five year period that begins five years from today. This is a measure commonly used by central banks to analyze the anchoring of inflation expectations in the long-run. It is difficult to obtain these estimates in markets without inflation-linked securities and, to the best of our knowledge, this is the first time that these kinds of estimates are computed for Brazilian, Colombian, Chilean and Mexican markets. Also, as we pointed out in the introduction, using existing surveys on inflation expectations provides a limited picture, as the horizons are usually short and the frequency of publication is only monthly at best.

Results

Chart 1 shows inflation expectations for the 1 year, 5 year and 10 year horizons, as well as the inflation targeting level established by the central bank in each country. We can see the different degree of anchoring by comparing the evolution of expectations for the 1 year horizon with those for the 5 year and 10 year horizons. Inflation expectations in Brazil and Colombia show a similar pattern for all horizons while expectations in Chile and Mexico are more volatile over the 1 year horizon, showing little changes over longer horizons.

Regarding the inflation targeting levels established by the central banks, most countries currently show

inflation expectations at long horizons within the window limits,² although Brazil and Colombia have experienced recent periods where inflation expectations were well above these limits. In fact, both countries showed inflation expectations above 6% before the large decrease experienced since the beginning of 2016. On the other hand, Mexico shows long term inflation expectations slightly above the upper band of 4%, mainly due to the recent increase in expectations after the last U.S. presidential elections. This effect is more apparent for the evolution of the one year horizon, fading out at longer terms. Interestingly, it seems that the results of these elections have barely affected inflation expectations in the other countries. For Brazil, the deep recession of 2015-2016 have affected expectations, with a large decrease experienced since the beginning of 2016. The path of inflation expectations changed again for Brazil at the end of 2016, with expectations turning higher at longer horizons, which signals a possible recovery. In the case of Colombia, the monetary policy implemented by the central bank during 2016, with increases in the policy rate from 4.5% in September 2015 to 7.75% in August 2016, have contained inflation expectations, being now closer to the inflation target.

² The Bank of Brazil sets the inflation target at 4.5% with a window limit of $\pm 1.5\%$. The central banks of Chile, Colombia and Mexico set the inflation target at 3% with a window limit of $\pm 1\%$.



Being able to decompose the yield curve and extracting inflation expectations at different horizons let us compute forward rates as well. This is especially useful in order to analyze the anchoring of inflation expectations over the medium and long term. In fact, forward rates such as the 5Y5Y (expected inflation over the five year period that begins five years from today) are used by central banks to assess the level of long term inflation anchoring. Chart 2 shows the 2Y2Y and 5Y5Y forward rates of inflation expectations together with the inflation target established by each central bank.

Similarly to the behavior of the 10 year horizon inflation expectations, the forward rates for Chile and Mexico are more stable and hardly move over time. The levels are above the inflation target but within the window of $\pm 1\%$ for Chile and almost within that window for Mexico. These results show that investors have almost kept unchanged the level of long-term expected inflation for these two countries. On the contrary, inflation anchoring for Brazil and Colombia seems to be lower, with forward rates showing more volatility. In Brazil long-term inflation expectations are above the target level but below the upper limit of $\pm 1.5\%$, due to the large decrease experienced since the beginning of 2016. For Colombia there is a similar pattern, with long-term inflation expectations currently below the target level of 3% after the decrease in the 5Y5Y forward rate experienced since mid-2016. The behavior of forward rates for Brazil and Colombia show that investors seem to face more uncertainty about the expected inflation in the long-term for these two countries. It could be also the case

the government bond markets provide less information about future inflation for these two countries.

Finally, we compare the forecasting accuracy of the inflation expectations over one year obtained from our model with those provided by surveys and a simple autoregressive process AR(1). Table 1 shows the ratio of the MSE obtained using expectations from surveys, as well as from our model and the AR(1) process, to the MSE computed using current inflation as the predicted future value (like in a unit root process). If the ratio is lower than one, it means that the expected values provide a better prediction of future inflation than assuming inflation will remain the same as today. The three measures, inflation expectations from surveys, from the AR(1) and from our model show lower MSE than the unit root prediction. Comparing the three

EXPECTED INFLATION FORECAST ERRORS TABLE 1

	Sample	Survey (a)	Model (a)	AR(1) (a)
Brazil	Feb 2007 - Oct 2016	0.5833	0.8812	0.8415
Chile	Jul 2012 - Dec 2016	0.7813	0.6946	0.7148
Colombia	Feb 2005 - Nov 2016	0.7956	0.9354	0.8015
Mexico	May 2001 - Nov 2016	0.6350	0.7078	0.6324

a Ratio of mean square error of expected inflation from surveys, an AR(1) process and our model with respect to a naive prediction of expected inflation equal to current inflation. Expected inflation in 12 months for Brazil, Colombia and Mexico; 11 months for Chile.

measures, expected inflation from surveys show lower MSE for Brazil and Colombia. The model is the best predictor for Chile and the AR(1) process provides the lowest MSE for Mexico. It seems that our measures of expected inflation are more accurate for countries where expectations are fairly anchored in the long-run. Our measures do complement those from surveys in terms of predictability, providing additional forecasting power and a much richer set of expected inflation horizons, and frequency.

REFERENCES

- ANG A., G. BEKAERT and M. WEI (2007). *Do macro variables, asset markets, or surveys forecast inflation better?*, Journal of Monetary Economics, vol. 54, No. 4, pp. 1163-1212.
- ANG A., G. BEKAERT and M. WEI (2008). *The term structure of real rates and expected inflation*. Journal of Finance 63, 797-849.
- CHAN, J., G. KOOP and S. POTTER (2013). *A new model of trend inflation*, Journal of Business and Economic Statistics, vol. 31, No 1, pp. 94-106.
- CARRIERO, A., C. A. FAVERO and I. KAMINSKA (2006). *Financial factors, macroeconomic information and the expectations theory of the term structure of interest rates*. Journal of Econometrics 131, 339-358.
- DIEBOLD, F. X., and C. LI (2006). *Forecasting the term structure of government bond yields*. Journal of Econometrics 130, 337-364.
- DIEBOLD F. X., G. D. RUDEBUSCH and S. B. AROUBA (2006). *The macroeconomy and the yield curve: a dynamic latent factor approach*. Journal of Econometrics 131, 309-338.
- DIEBOLD, F. X., M. PIAZZESI and G. D. RUDEBUSCH (2005). *Modeling bond yields in finance and macroeconomics*. American Economic Review 95, 415-420.
- GIMENO, R., and J. M. MARQUÉS (2012). *A market based approach to inflation expectations, risk premia and real interest rates*, The Spanish Review of Financial Economics, No 10, pp 18-29.
- NELSON, C., A. SIEGEL (1987). *Parsimonious modelling of yield curves*. Journal of Business, Vol 60, pp 473-489.

THE RISE AND FALL OF THE NATURAL INTEREST RATE

SUMMARY OF BANCO DE ESPAÑA WORKING PAPER N° 1819

GABRIELE FIORENTINI, ALESSANDRO GALESÌ, GABRIEL PÉREZ-QUIRÓS,
AND ENRIQUE SENTANA

We document a rise and fall of the natural interest rate (r^) for several advanced economies, which starts increasing in the 1960's and peaks around the end of the 1980's. We reach this conclusion after showing that the Laubach and Williams (2003) model cannot estimate r^* accurately when either the IS curve or the Phillips curve is flat. In those empirically relevant situations, a local level specification for the observed interest rate can precisely estimate r^* . An estimated Panel ECM suggests that the temporary demographic effect of the young baby-boomers mostly accounts for the rise and fall.*

At the current juncture, interest rates are historically low in most advanced economies. This fact has led many economists to put forward the proposition that the natural interest rate (r^*), which is the rate that equates savings and investment and closes the output gap, has been falling over time. But given that the natural interest rate is a theoretical concept, it has to be measured from data. Since the seminal work of Laubach and Williams (2003, hereinafter LW2003), many papers have studied the measurement of this rate, showing that it has dramatically fallen over recent decades in tandem with a slowdown in growth (see for example Holston et al. 2017, hereinafter HLW2017). At the same time, the common perception is that the usual measures of r^* are generally imprecise and that the associated uncertainty could prevent the practical use of the estimated r^* in policy applications.¹

The popular approach to estimate r^* , introduced in LW2003, consists of a semi-structural econometric model whose equations are inspired by the key equations of the New Keynesian framework. Specifically, their model consists of two main equations: an aggregate demand equation (IS curve), which states that the gap between the observed real interest rate and the natural interest rate affects the output gap; and an aggregate supply equation (Phillips curve), which relates inflation to the output gap. The model is closed by assuming that the natural interest rate is the sum of two unobserved nonstationary components: the underlying trend growth of the economy and a non-growth component.

¹ See for example Clark and Kozicki (2005), Weber et al. (2008), as well as recent papers by Hamilton et al. (2016), Taylor and Wieland (2016), and Beyers and Wieland (2017).

We dig into the mechanics of the LW2003 model and show that it is generally able to produce very accurate estimates of r^* . However, the precision of the model drops in two specific circumstances:

- (i) *Flat IS curve*: the output gap is insensitive to the real interest rate gap, so that information about the output gap cannot identify the non-growth component of r^* which affects the interest rate gap;
- (ii) *Flat Phillips curve*: inflation is insensitive to the output gap, so the former variable can identify neither the output gap nor potential output. As a consequence, it is not possible to separately identify potential output from the non-growth component of r^* .

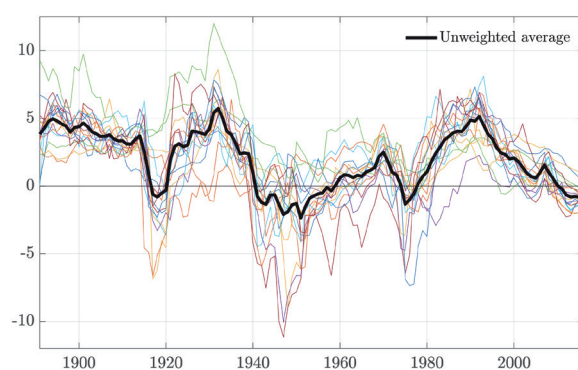
In both cases, the model is said to be unobservable since it is not possible to uniquely identify the unobserved r^* from the available data (see Kalman, 1960).

Unfortunately, the slopes of the IS and Phillips curves estimated in the literature tend to be close to 0. This fact was already documented in LW2003 using data for the United States, and has been confirmed in several empirical papers which estimate their model for a number of advanced economies. In those circumstances, the LW2003 model is close to be unobservable, which implies a very imprecisely estimated r^* .²

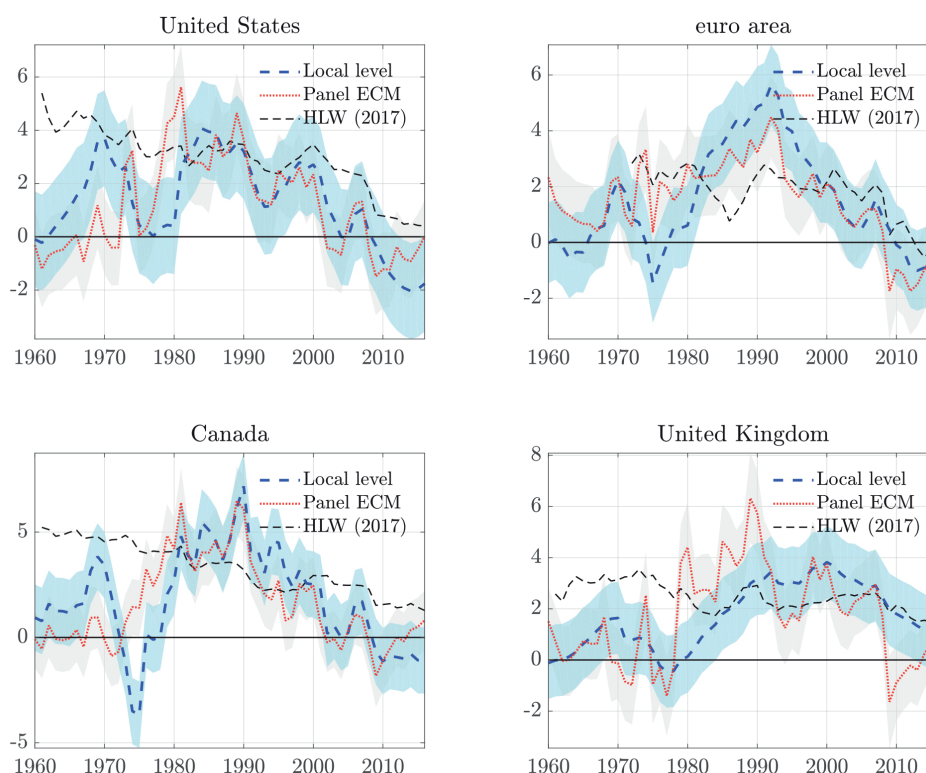
To solve this problem, we start by observing that the LW2003 model treats the observed real interest rate as

ESTIMATED NATURAL RATES ACROSS
COUNTRIES: 1891-2016

CHART 1



² The imprecision is driven by large uncertainty of the filter, so that it remains large even with perfect knowledge of the true values of the parameters.



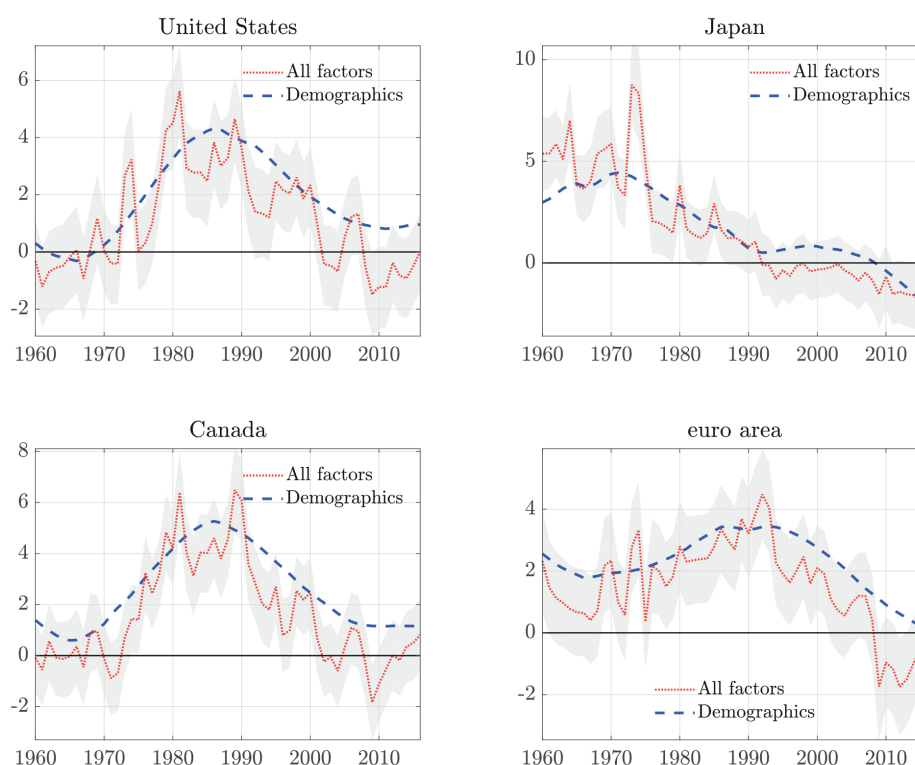
NOTES: annual data, 1960-2016. Local level model estimates in dashed blue jointly with 68% confidence bands, Panel ECM estimates in dotted red jointly with 68% confidence bands. Results from HLW (2017) in dashed black for the United States, Canada, and United Kingdom over the period 1961-2016, for the euro area over the period 1972-2016.

exogenous, therefore leaving the dynamic process for the interest rate gap undefined. But as soon as one imposes the stationarity of the interest rate gap, we show that one can identify both the growth and non-growth components of r^* even when the IS and Phillips curves are flat. The extra identification restriction comes from the fact that the observed rate can be decomposed into a transitory component (interest rate gap) and a permanent component (r^*).

A direct implication of our result is that, if a researcher is interested in estimating r^* but not necessarily its growth and non-growth components, then a valid alternative is to estimate a univariate local level model (Harvey, 1989), which decomposes the observed rate into its permanent and transitory components. The rationale behind our approach is that the interest rate gap, which is the stationary deviation between the observed rate and its unobserved permanent component, can be closed if and only if the observed rate coincides with its permanent component. Moreover, under a general class of New Keynesian models, output gap and inflation get completely stabilized by setting the interest rate gap to zero on a period-by-period basis. For this reason, we can think of the permanent component of the observed real interest rate as a measure of r^* . Still, the local level

model cannot identify the growth and non-growth components of r^* because it exploits data on the interest rate only. Nevertheless, it is robust to situations in which the empirical estimates suggest flat IS and Phillips curves.

Next, we collect historical data at annual frequency over the period 1891-2016 for a set of seventeen advanced economies. Such a sample is likely to produce flat IS and Phillips curves for two reasons: (i) the low frequency of the annual data may be too coarse to identify any relation among output gap, interest rate gap, and inflation; and (ii) the long time span may imply structural breaks in the relationships among variables. For those reasons, we estimate the r^* of each economy, thereby using international data to externally validate our local level specification. As reported in Figure 1, we find a common decline in r^* across countries since the start of the twentieth century until the 1960's, followed by a rise and fall which peaks around the end of the 1980's. While most of the literature has already emphasized the gradual fall of r^* that occurred since the early 1990's, here we put the dynamics of the rate in a long-run perspective and focus on the rise and fall which occurred over the post-WW2 period.



NOTES: annual data, 1960-2016. Panel ECM estimated natural interest rate in dotted red jointly with 68% confidence bands; estimated natural interest rate which abstracts from productivity growth and risk in dashed blue.

What has driven the rise and fall of the natural interest rate? The local level model, which uses data on real interest rates only, is silent about the drivers of r^* . Hence we shed some light on this issue by estimating a Panel ECM which postulates a long-run relationship between the observed real interest rate and a set of indicators for plausibly exogenous drivers of r^* : productivity growth, demographic composition, and risk. The intuition is that, if there exists a long-run relation among the unobserved r^* and its drivers, then it should also hold among the observable counterparts. The rate predicted by the model can thus be used as a proxy for r^* . In this respect, we show that the Panel ECM predicts a rate which closely follows the r^* estimated by the local level model, as shown in Figure 2.

Through the lens of the Panel ECM, productivity growth plays a negligible role in driving the rise and fall of r^* . In contrast, we find that risk is related to important developments in r^* and it accounts for a substantial part of the fall since the 1990's. Last, but not least, we

³ Interestingly, demographics account for the dynamics of r^* in Japan too, which experienced the demographic transition much earlier than the rest of advanced economies, consistently predicting the absence of the rise and fall of r^* for this economy.

find that the changing demographic composition accounts for the bulk of the rise and fall in r^* , as shown in Figure 3. Specifically, the rise can be explained by the post-war baby boom, which temporarily increased the share of young workers in the population. Once the baby boom ends, the share of young workers goes back to its previous negatively trended path, which in turn leads to a process of population ageing.³ This finding provides empirical support to recent studies which have emphasized the role of demographics for the evolution of the real interest rate (Aksoy et al. 2015; Carvalho et al. 2016; Favero et al. 2016a, 2016b; Gagnon et al. 2016; Lisack et al. 2017; Ferrero et al. 2017; Rachel and Smith, 2017).

REFERENCES

- AKSOY, Y., H. S. BASSO, R. SMITH and T. GRASL (2015). "Demographic Structure and Macroeconomic Trends". Banco de España Working Paper No. 1528. Forthcoming in *American Economic Journal: Macroeconomics*.
- BEYER, R. C. M., and V. WIELAND (2017). "Instability, imprecision, and inconsistent use of equilibrium real interest rate estimates" Institute for Monetary and

- Financial Stability Working Paper Series 110, Goethe University Frankfurt.
- CARVALHO, C., A. FERRERO and F. NECHIO (2016). "Demographics and real interest rates: Inspecting the mechanism". *European Economic Review* 88, 208-226.
- CLARK, T. E., and S. KOZICKI (2005). "Estimating equilibrium real interest rates in real time". *The North American Journal of Economics and Finance*, 16, 395-413.
- FAVERO, C. A., and V. GALASSO (2016a). "Demographics and the Secular Stagnation". In: *After the Crisis: Reform, Recovery, and Growth in Europe*. Edited by F. Caselli, M. Centeno, and J. Tavares. Oxford University Press.
- FAVERO, C. A., A. E. GOZLUKLU and H. YANG (2016b). "Demographics and the behavior of interest rates". *IMF Economic Review* 64, 732-776.
- FERRERO G., M. GROSS and S. NERI (2017). "On secular stagnation and low interest rates: demography matters". European Central Bank Working Paper Series No. 2088.
- FIorentini G., A. Galesi, G. PÉREZ-QUIRÓS and E. SENTANA (2018). "The Rise and Fall of the Natural Interest Rate". Banco de España Working Paper No. 1822.
- GAGNON, E., B. K. JOHANNSEN and J. D. LOPEZ-SALIDO (2016). "Understanding the New Normal: the role of demographics". FEDS Working Paper No. 2016-080.
- HAMILTON, J. D., E. S. HARRIS, J. HATZIUS and K. D. WEST (2016). "The equilibrium real funds rate: Past, present, and future". *IMF Economic Review*, 64, 660-707.
- HARVEY, A. (1989). *Forecasting, structural time series models and the Kalman filter*. Cambridge University Press.
- HOLSTON, K., T. LAUBACH and J. C. WILLIAMS (2017). "Measuring the natural rate of interest: International trends and determinants". *Journal of International Economics*, 108, S59-S75.
- KALMAN, R. E. (1960). "On the general theory of control systems". Proc. First International Congress on Automatic Control, Moscow.
- LAUBACH, T. and J. C. WILLIAMS (2003). "Measuring the Natural Rate of Interest". *Review of Economics and Statistics*, 85, 1063-1070.
- LISACK, N., R. SAJEDI and G. THWAITES (2017). "Demographic trends and the real interest rate". Bank of England Working Paper Series, No. 701.
- RACHEL, L., and T. D. SMITH (2017). "Are Low Real Interest Rates Here to Stay?" *International Journal of Central Banking*, 13, 1-42.
- TAYLOR, J. B., and V. WIELAND (2016). "Finding the equilibrium real interest rate in a fog of policy deviations", *Business economics*, 51, 147-154.
- WEBER, A. A., W. LEMKE and A. WORMS (2008). "How useful is the concept of the natural real rate of interest for monetary policy?", *Cambridge Journal of Economics*, 32, 49-63.

THE SPANISH SURVEY OF FINANCIAL COMPETENCES 2016: MAIN RESULTS

OLYMPIA BOVER, LAURA HOSPIDO AND ERNESTO VILLANUEVA

The new Survey of Financial Competences was fielded between 2016 Q4 and 2017 Q2, measuring the knowledge and understanding of financial concepts by the Spanish adult population, as well as its holding, acquisition and use of various savings, debt and insurance vehicles. This article provides an overview of the methods and main results of the survey.¹

1 Introduction

Surveys conducted in several countries have shown that many individuals are not familiar with basic concepts related to inflation, compound interest and risk diversification. Related studies also have documented a strong correlation between this lack of knowledge and poor financial outcomes. In addition, given the growing complexity of financial products, the lack of basic financial competences may make it increasingly difficult for individuals to choose the savings, insurance and debt vehicles best suited to them.

In this scenario arises the Spanish Survey of Financial Competences (ECF by its Spanish abbreviation), a joint initiative of the Banco de España (BdE) and the CNMV, under the Financial Education Plan. Included in the National Statistics Plan, this survey has key characteristics that provide for a rigorous and comprehensive description of the Spanish adult population's financial literacy and of their relationship with the financial system.²

First, the study has had the collaboration of the National Statistics Institute (INE), which has provided a large sample of randomly selected individuals representing the Spanish territory as a whole and each of its 17 regions.

Secondly, the ECF is part of an international project coordinated by the OECD that measures the financial literacy, attitudes and behaviour of the population from a broad set of countries between 2015 and 2016. The ECF helps to set Spaniards' financial literacy and interaction with the financial system in an international context.

¹ For a more complete summary, see "The Survey of Financial Competences (2016): main results", available at https://www.bde.es/f/webbde/SES/estadis/otras_estadis/2016/ECF2016-en.pdf

² Previous studies on the financial competences of the Spanish population in an international context are Klapper et al. (2015) and Allianz (2017).

Finally, in addition to including the questions proposed in the international study, the ECF also adapts the questionnaire to the Spanish case incorporating three important novelties: (i) the study includes information on both the financial competences of the sample individuals and on those of the household; (ii) it also includes measures validated in international studies of individuals' cognitive skills, beyond those of a strictly financial nature; and (iii) there is a module on the main residence from which information is obtained on the decision regarding owner-occupation, expectations about the price of the dwelling and, where appropriate, on how the purchase was financed.

2 Description and methodology of the survey

The INE provided a sample of more than 21 thousands individuals aged 18-79 and living in private households in Spain that is representative of the entire territory and of each of its regions.

An introductory letter signed by the Governor of Banco de España and the President of the CNMV was sent to the address of each sample member. Following this, 100 interviewers specially trained for this survey contacted them to conduct a face-to-face interview using a CAPI questionnaire.

The questionnaire includes information on the demographic characteristics and labour market status of sample interviewees, their portfolio and the means of acquisition of the information, income sources in old age or inactivity, attitudes toward saving, financial and economic literacy. Information on the main residence, expenses and financial fragility is obtained at the household level.

Interviewers asked interviewees about their consent to audio record selected parts of the interview. Audio recording serves the dual purpose of guaranteeing that the interview follows the protocol and checking how interviewees understand difficult questions. Interviewers were monitored at most 48 hours after each interview. Each of the resulting 8,952 successful interviews, once anonymised, were uploaded to a secure platform to be reviewed on-line by a team of 4 reviewers of the fieldwork company in close communication with the staff of Banco de España. The process involved recontacting the interviewees if strictly necessary. After that process, 8,554 complete interviews were considered valid.

Finally, the INE provided weights calibrated by age, gender and nationality at the regional level.

3 Main results

3.1 Financial literacy of the Spanish Population aged 18 to 79

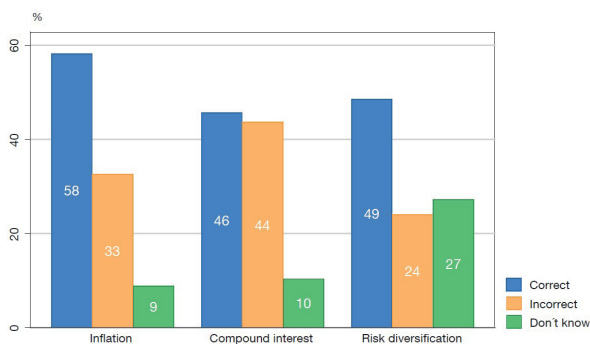
The three questions on financial literacy analysed have been used previously in several international studies.³

Responding correctly to the first question (inflation) requires understanding that money loses purchasing power when prices rise. The percentage of interviewees answering the inflation question correctly is 58% (see Figure 1).

To answer the second question correctly (compound interest rate), the interviewee must realise that the changes to an amount saved in an account over five years depend not only on the annual interest rate applied to the amount saved the first year, but also on the interest accrued thereafter. Less than half of the interviewees respond correctly to this question (46%).

Finally, the third question (risk diversification) measures whether it is understood that the risk associated with investing in equities diminishes if a broad range of shares is acquired rather than a single type of share. Again, less than half of the interviewees respond correctly (49%).

REPLIES TO FINANCIAL LITERACY QUESTIONS FIGURE 1



Two common patterns across the responses to those three questions are noticeable. Firstly, comparing across individuals with different level of schooling, the percentage of correct answers is higher (between 14 and 22 percentage points, pp) for those with a university degree than for those with primary education. Those differences in the fraction of correct answers

³ See Lusardi and Mitchell (2014).

across educational groups have been detected in previous international studies –see Lusardi and Mitchell, 2014.

Secondly, comparing results by gender, the percentage of correct answers among women is lower (8-12 pp) than among men. Women respond "do not know" more frequently than men (5-11 pp). Similar gender gaps have been documented in numerous countries (the Spanish figures are in line with those found for instance in the United States or Germany).⁴

Comparing men and women with similar demographic characteristics, it can be seen that the literacy gaps narrow especially among younger interviewees and among those individuals who live in households with other adults, but without a partner. According to the survey, both youths and individuals living with adults other than their partner are disproportionately likely to delegate their financial decisions to other adults.⁵ The absence of financial literacy gaps among groups that do not face financial decisions suggests that gender gaps are low to start with, but evolve once individuals are exposed to financial decisions.

3.2 Holding and acquisition of financial products

A common measure of financial inclusion is holding a bank account.⁶ 97% of individuals in Spain hold a current account, this percentage being lower among immigrants (92%), individuals with primary schooling (96%) and those living in households whose income is lower than €14,500 (94%).

As already hinted from previous studies, the percentage of individuals holding (individually or jointly) a savings vehicle – a concept including savings accounts, pension schemes, investment funds, shares and fixed-income assets – is much lower (43%). 41% of individuals hold some type of debt (mortgage or personal loan).⁷

Less was known about the regional distribution of the percentage of individuals holding a savings or borrowing product. When comparing regions, at least 50%

⁴ See Figure 1b in Lusardi and Mitchell (2014).

⁵ Specifically, in the ECF, individuals are deemed to delegate when they have replied "No" in the survey to the following question: "We wish to know whether you are familiar with your household finances. We refer not only to whether you know the overall household's properties, financial products and debt, but also the reasons behind specific decisions on spending and investment."

⁶ See Demircuc-Kunt et al, (2015).

⁷ See Banco de España (2017) and Household Finance and Consumption Network (2016).

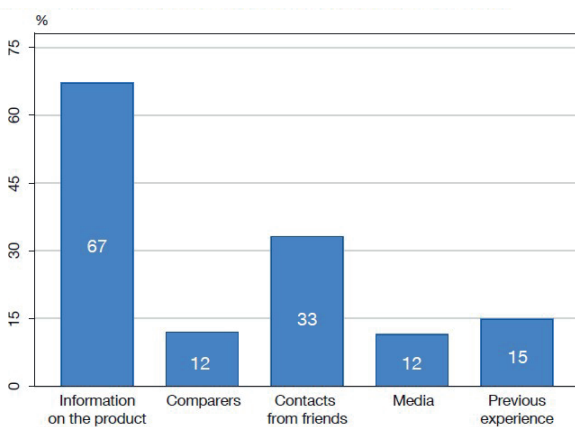
of individuals aged between 18 and 79 have some type of savings vehicle in Aragon, Castile-Leon, Madrid and the Basque Country, whereas in Andalusia, the Canary Islands and Extremadura the percentage is around 35%. The change from region to region in the proportion of indebted individuals is less marked than it is in the holding of savings vehicles.

The ECF contains information not only on the holding of financial products but also on whether such products have been recently acquired and on the information sources Spaniards use when choosing savings, insurance, means-of-payment and debt vehicles.

The proportion of the population that has acquired (individually or jointly) a financial product in the two years prior to the survey is 38%. However, this percentage increases dramatically across income groups, a pattern that is more salient in the case of saving vehicles than for insurance products or credit cards.

An analysis of the search practices of those who have recently acquired a financial product gives hints on how likely it is that individuals find the savings, insurance or credit vehicle most suitable for their needs. Around two out of three people (62%) who have acquired a financial product in the past two years have confined themselves to those offered by a single company or financial institution. Moreover, 67% of those who have acquired a financial product in the past two years state that the information source being most influential in their final decision was the information on that specific product, i.e. that provided by the staff of the company offering the product or through brochures (see Figure 2).

MOST INFLUENTIAL INFORMATION SOURCES WHEN ACQUIRING A NEW PRODUCT FIGURE 2



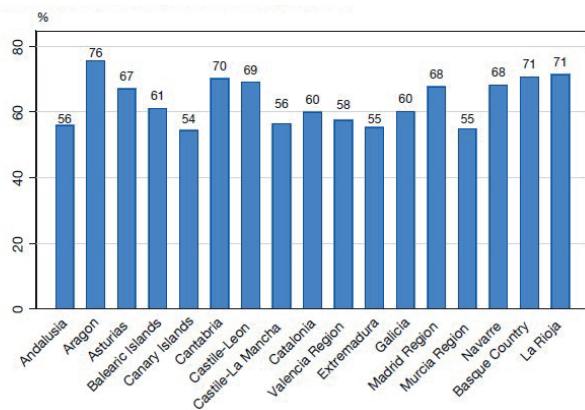
3.3 Vehicles used for saving

61% of individuals say that they have been saving over the past 12 months. Moreover, 8% of interviewees claim

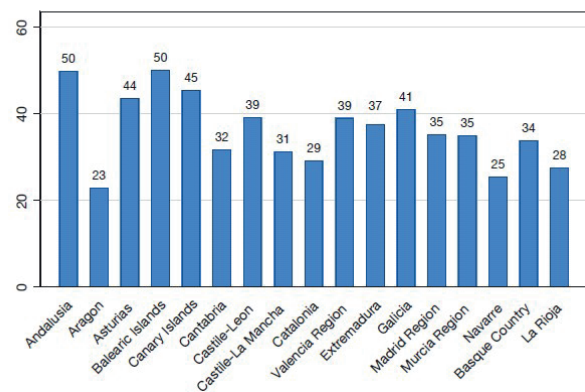
not to have saved but to be paying a mortgage loan for the acquisition of property. The most frequent means of saving, mentioned by 63% of those doing so, consists of accumulating funds in a current account. The percentage of the population that uses other financial vehicles to channel their saving is lower: 14% use their savings account, while 11% have contributed to their pension scheme. Indeed, a significant proportion of individuals saves outside the financial system. For example, 38% of the population who save do so in cash.

Figures 3 and 4 illustrate the cross-regional differences both in the proportion of individuals who have saved over the past 12 months and in the savings vehicles used.

HAVE BEEN SAVING IN PAST 12 MONTHS (%), BY REGION FIGURE 3



HAVE BEEN SAVING IN CASH (% OF THOSE WHO HAVE SAVED), BY REGION FIGURE 4



3.4 How do these numbers compare with those from peer countries?

The percentage of correct answers to financial knowledge questions is around the average of the countries for which comparable information is available, with the exception of the concept of risk diversification, for which the percentage of correct answers is lower in the case of Spain (see Table 1).

INTERNATIONAL COMPARISON

TABLE 1

% of the population	Spain	Average for all countries (a)	Average OECD countries (a)	Average EU countries (a)
Inflation	58	60	65	66
Compound interest	46	42	47	44
Risk diversification	49	60	60	62
Has a current account	97	72	87	89
Has a savings vehicle (including life insurance)	55	61	66	60
Recently acquired a financial product	38	61	54	50
Expenditure has exceeded income in the past 12	28	35	28	27
Expenditure exceeding income has been financed by credit (b)	17	21	15	14

a Countries with available information.

b Includes credit from friends and family.

Holding of means of payment (current account) is generalised (97%) in Spain and higher than the average for EU (89%) or OECD (87%) countries, and well above the average for all countries (72%). Holding of savings products and life insurance (55%) is slightly below the three averages (61% for all countries, 66% OECD and 60% EU).

38% of individuals have acquired some financial product in the last 2 years, below the average for EU countries (50%) or for the OECD (54%), and well below the total average (61%). Spain is close to the OECD average and slightly above the average for EU countries in expenditure exceeding income and the financing using credit (including family and friends) thereof.

4 Conclusions

The main results of the ECF offer a comprehensive overview of the financial knowledge of the adult population in Spain. However, research is needed on the relationship between that financial knowledge and the savings, spending and investment decisions of individuals and households in Spain.

In this regard, the anonymized micro data from the survey are already available to researchers on the Banco de España web page.

REFERENCES

- ALLIANZ (2017). *When Will the Penny Drop?*, International Pension Papers, 1/2017.
- BANCO DE ESPAÑA (2017). Survey of Household Finances (2014): Methods, results and changes since 2011. *Analytical Articles no 1*.
- DEMIRGUC-KUNT, A., L. KLAPPER, D. SINGER and P. VAN OUDHEUSDEN (2015). *The Global FIndex Database 2014: Measuring Financial Inclusion Around the Globe*, World Bank Document 7255
- HOUSEHOLD FINANCE AND CONSUMPTION NETWORK (2016). *The Household Finance and Consumption Survey*, Statistics Working Paper Series, European Central Bank.
- KLAPPER, L., A. LUSARDI and P. VAN OUDHEUSDEN (2015). *Financial Literacy Around the World: Insights from the Standard and Poor's Ratings Services*, available at http://gflec.org/wp-content/uploads/2015/11/3313-Finlit_Report_FINAL-5.11.16.pdf?x87657
- LUSARDI, A., and O. MITCHELL (2014). "The Economic Importance of Financial Literacy: Theory and Evidence", *Journal of Economic Literature* 52(1), pp. 5-44.

PUBLICATIONS

RECENT WORKING PAPERS

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[BANK LENDING STANDARDS OVER THE CYCLE: THE ROLE OF FIRMS' PRODUCTIVITY AND CREDIT RISK](#)

GABRIEL JIMÉNEZ, ENRIQUE MORAL-BENITO AND RAQUEL VEGAS

WORKING PAPER N° 1811

We show that bank lending standards are influenced by macroeconomic conditions. We use monthly data from the Banco de España Central Credit Register, which allow us to monitor all loan applications made by non-financial firms to non-current banks from 2002 to 2015. To test the pro-cyclicality of banks' appetite for risk, we investigate how two firm characteristics (ex-ante credit risk and productivity) interacting with two macroeconomic indicators (business cycle and the monetary policy stance) affect the probability of granting a loan. In order to enhance identification we account for unobserved heterogeneity by means of firm and bank-time fixed effects. Our findings indicate that banks soften their credit standards during booms or when monetary policy is loose to harden them during busts or when short-term interest rates increase. This pattern is especially relevant in the case of firms' productivity, which might partly explain the dismal evolution of aggregate productivity in Spain during the pre-crisis period. Finally, we also find that these results are more pronounced among less capitalized, less liquid and more profitable banks.

[INDUSTRY VS SERVICES: DO ENFORCEMENT INSTITUTIONS MATTER FOR SPECIALIZATION PATTERNS? DISAGGREGATED EVIDENCE FROM SPAIN](#)

JUAN S. MORA-SANGUINETTI AND ROK SPRUK

WORKING PAPER N° 1812

We exploit historical differences in foral law to consistently estimate the contribution of the quality of enforcement institutions to economic specialization across Spanish provinces in the period 1999-2014. The distribution of economic activity in Spain as of today shows a strong pattern of geographical specialization. Regions less specialized in manufacturing (industry) and oriented to services sectors (Andalusia, Extremadura) in the south are compared with industrialized/manufacturing regions in

the north such as the Basque Country, Navarre or Aragon. We construct province-level congestion rates across three different jurisdictions (civil, labor and administrative) from real judicial data measuring the performance of the Spanish judicial system over time, and estimate the effect of judicial efficacy on the share of manufacturing and services in the total output. Using a variety of estimation techniques, the evidence unveils strong and persistent effects of judicial efficacy on province-level economic specialization with notable distributional differences. The provinces with a historical experience of foral law are significantly more likely to have more efficient enforcement institutions at the present day. In turn, greater judicial efficacy facilitates specialization in high-productivity manufacturing while greater judicial inefficacy encourages service-intensive specialization. The effect of judicial efficacy on economic specialization does not depend on confounders, holds across a number of specification checks and appears to be causal. Lastly, the three jurisdictions seem relevant to explain specialization, although the administrative jurisdiction appears to have a more pronounced impact than the labor or civil jurisdictions.

[MONETARY POLICY WHEN HOUSEHOLDS HAVE DEBT: NEW EVIDENCE ON THE TRANSMISSION MECHANISM](#)

JAMES CLOYNE, CLODOMIRO FERREIRA AND PAOLO SURICO

WORKING PAPER N° 1813

How do changes in monetary policy affect consumption? Using household data for the US and the UK, we show that most of the aggregate response of consumption to interest rates is driven by households with a mortgage. Outright home owners do not adjust expenditure at all and renters change their spending but by less than mortgagors. Income rises for all households as interest rate cuts directly affect firm investment and household consumption, boosting aggregate demand. A key difference between these housing tenure groups is the composition of their balance sheets: mortgagors hold sizable illiquid assets but little liquid wealth, consistent with a higher marginal propensity to consume.

THE COSTS OF TRADE PROTECTIONISM: EVIDENCE FROM SPANISH FIRMS AND NON-TARIFF MEASURES

DMITRI KIRPICHEV AND ENRIQUE MORAL-BENITO

WORKING PAPER N° 1814

The rise in non-tariff protectionist measures has been associated to the weakness in global trade over the last few years. We investigate the effect of non-tariff barriers (NTBs) on exports growth over the period 2009-2013 using administrative data at the firm-product-destination level in Spain. According to our findings, non-tariff protectionist measures significantly reduce exports growth at the product-destination level. Moreover, NTBs also hinder exports growth at the firm level and negatively affect other firm outcomes such as productivity growth. In contrast, the impact of liberalizing non-tariff measures is not statistically significant.

FINANCIAL INSTITUTIONS' BUSINESS MODELS AND THE GLOBAL TRANSMISSION OF MONETARY POLICY

ISABEL ARGIMÓN, CLEMENS BONNER, RICARDO CORREA, PATTY DUIJM, JON FROST, JAKOB DE HAAN, LEO DE HAAN AND VIKTORS STEBUNOV

WORKING PAPER N° 1815

Global financial institutions play an important role in channeling funds across countries and, therefore, transmitting monetary policy from one country to another. In this paper, we study whether such international transmission depends on financial institutions' business models. In particular, we use Dutch, Spanish, and U.S. confidential supervisory data to test whether the transmission operates differently through banks, insurance companies, and pension funds. We find marked heterogeneity in the transmission of monetary policy across the three types of institutions, across the three banking systems, and across banks within each banking system. While insurance companies and pension funds do not transmit homecountry monetary policy internationally, banks do, with the direction and strength of the transmission determined by their business models and balance sheet characteristics.

COMPETITION AND THE WELFARE GAINS FROM TRANSPORTATION INFRASTRUCTURE: EVIDENCE FROM THE GOLDEN QUADRILATERAL OF INDIA

JOSE ASTURIAS, MANUEL GARCÍA-SANTANA AND ROBERTO RAMOS

WORKING PAPER N° 1816

A significant amount of resources is spent every year on the improvement of transportation infrastructure in developing countries. In this paper, we investigate the

effects of one such large project, the Golden Quadrilateral in India. We do so using a model of internal trade with variable markups. In contrast to the previous literature, our model incorporates several channels through which transportation infrastructure affects welfare. In particular, the model accounts for gains stemming from improvements in the allocative efficiency of the economy. We calibrate the model to the Indian manufacturing sector and find real income gains of 2.7%. We also find that allocative efficiency accounts for 7.4% of these gains. The importance of allocative efficiency varies greatly across states, and can account for up to 18% of the overall gains in some states. The remaining welfare gains are accounted for by changes in labor income, productive efficiency, and average markups that affect states' terms of trade.

MULTIDIMENSIONAL MEDIA SLANT: COMPLEMENTARITIES IN NEWS REPORTING BY US NEWSPAPERS

SANDRA GARCÍA-URIBE

WORKING PAPER N° 1817

Are editors' choices of front page news based on the potential complementarities between the news items? This paper studies front page choices made by editors of major newspapers in the US. I document that newspapers front pages are biased to certain combinations of news on top of biased to certain news. To identify my measures of bias, I exploit the variation in news relevance across different topics and days. To measure the news relevance I use lead news choices of other US mass media. As a consequence, my measures of bias are relative to the overall media bias. I also provide a reader-maximization model for front page decisions that I use to interpret the empirical biases of the newspaper as preferences of its population of target readers. From my estimation, I recover maps of complementarities among pairs of topics for each of the major US newspapers. I find that complementarities between news contribute in a large portion to the probability that news on a topic appears in the front page.

PRICE STRATEGIES OF INDEPENDENT AND BRANDED DEALERS IN RETAIL GAS MARKET. THE CASE OF A CONTRACT REFORM IN SPAIN

PILAR CUADRADO, AITOR LACUESTA, MARÍA DE LOS LLANOS MATEA AND F. JAVIER PALENCIA-GONZÁLEZ

WORKING PAPER N° 1818

This paper analyses how the contract structure between gas stations and the wholesale operator affects price strategies. Using daily data on prices

of different gas stations the paper finds that independent dealers charge lower margins than other dealers with different contracts. One potential hypothesis is that this is the case because independent stations react more to the number of competitors. We use the introduction of a discretionary regional excise duty (IVMDH) on gas stations to check the reaction of markups to changes in marginal costs of the actual number of competitors. Results are consistent with the idea that regardless the type of contract all dealers react notably to the increases in relative marginal costs by decreasing average markups. We use those results to interpret the inexistent reduction in markups that followed a change in the Spanish regulation that took place in 2013 fostering competition in the retail sector. One potential interpretation is that the big increase in independent stations following the reform was not considered an increase in actual competition for most of the incumbent stations.

EXTRACTION OF INFLATION EXPECTATIONS FROM FINANCIAL INSTRUMENTS IN LATIN AMERICA

ALBERTO FUERTES, RICARDO GIMENO AND JOSÉ MANUEL MARQUÉS
WORKING PAPER N° 1819

In this paper we estimate inflation expectations for several Latin American countries using an affine model that takes as factors the observed inflation and the parameters generated from zero-coupon yield curves of nominal bonds. By implementing this approach, we avoid the use of inflation-linked securities, which are scarce in many of these markets, and obtain market measures of inflation expectations free of any risk premium, eliminating potential biases included in other measures such as breakeven rates. Our method provides several advantages, as we can compute inflation expectations at any horizon and forward rates such as the expected inflation over the five year period that begins five years from today. We find that inflation expectations in the long-run are fairly anchored in Chile and Mexico, while those in Brazil and Colombia are more volatile and less anchored. We also find that expected inflation increases at longer horizons in Brazil and Chile, while it is decreasing in Colombia and Mexico.

FISCAL POLICIES IN THE EURO AREA: REVISITING THE SIZE OF SPILLOVERS

MARIO ALLOZA, PABLO BURRIEL AND JAVIER J. PÉREZ
WORKING PAPER N° 1820

The issue of the size of fiscal spillovers in the euro area has gained prominence recently, given proposals to coordinate fiscal policies that aim at achieving an

appropriate “aggregate fiscal stance”, consistent with economic and monetary policy conditions. Given the heterogeneous fiscal positions of member states, such stance would be achieved by fine-tuning policies of countries with enough fiscal space. Appealing as they are, such proposals have so far been based on limited empirical evidence. On the one hand, the literature based on calibrated/estimated general equilibrium models tends to find that fiscal spillovers within the euro area are small once all channels are considered (trade channel vs. monetary policy reaction, exchange rate, and risk premium). On the other hand, the available empirical studies hinge on pools of countries, given data limitations, and do not provide robust country-specific estimates. In our paper we revisit the issue at hand. To do so, first, we compile quarterly datasets of fiscal policy variables for the four major euro area economies (1980q1-2016q4), based on consistent and comparable criteria and sources. This rich dataset allows us to effectively exploit exclusion restrictions within a structural VAR framework to identify country-specific government spending shocks. We use these shocks to explore the dynamic effects of fiscal changes in one country on neighbor countries (spillovers), finding significant and economically-relevant effects. We document that these spillover effects are notably heterogeneous in euro area countries and are particularly powerful when the fiscal actions are based on public investment expansions. We find that trade is a key transmission mechanism in explaining our results.

UNCERTAINTY, FIRM HETEROGENEITY AND LABOUR ADJUSTMENTS. EVIDENCE FROM EUROPEAN COUNTRIES

MARTA MARTÍNEZ-MATUTE AND ALBERTO URTASUN
WORKING PAPER N° 1821

Firms are significantly affected by uncertainty about economic activity. Recent literature has shown that uncertainty is a factor of increasing importance in a globalized world, especially after its sharp increase during the last crisis. However, uncertainty did not impact all the firms in the same way. In this paper, we analyze if uncertainty may have different effects depending on firms' characteristics. We would also like to understand how firms react to uncertainty diversely. Using data from the 3rd wave of the Wage Dynamic Network Survey for 25 European countries, we first construct a set of uncertainty indicators exploiting firms environment. We combine variability from country, sector and size at the firm level in order to disaggregate microeconomic uncertainty, which offers richer information than the traditional macroeconomic indicators. Secondly, we estimate the effect of uncertainty on labour adjustments. Results reveal that

firms reduce hiring and increase the adjustment of labour demand with more frequency when uncertainty is higher. An increase of 1% in our uncertainty indicator increases the probability of having frozen hiring in between 21% to 35% during the period 2010-2013. Furthermore, other labour strategies have been also taken by firms, such as altering labour workforce: the more the uncertainty is, the more probability of recurring to individual layoffs. Significant effects have been found in firms subject to credit constraints, and country heterogeneity has also been studied: when EPL is stricter, labour response to uncertainty is also more significant.

THE RISE AND FALL OF THE NATURAL INTEREST RATE

GABRIELE FIORENTINI, ALESSANDRO GALESÌ, GABRIEL PÉREZ-QUIRÓS AND ENRIQUE SENTANA

WORKING PAPER N° 1822

We document a rise and fall of the natural interest rate (r^*) for several advanced economies, which starts increasing in the 1960's and peaks around the end of the 1980's. We reach this conclusion after showing that the Laubach and Williams (2003) model cannot estimate r^* accurately when either the IS curve or the Phillips curve is flat. In those empirically relevant situations, a local level specification for the observed interest rate can precisely estimate r^* . An estimated Panel ECM suggests that the temporary demographic effect of the young baby-boomers mostly accounts for the rise and fall.

THE FINANCIAL TRANSMISSION OF HOUSING BUBBLES: EVIDENCE FROM SPAIN

ALBERTO MARTÍN, ENRIQUE MORAL-BENITO AND TOM SCHMITZ

WORKING PAPER N° 1823

What are the effects of a housing bubble on the rest of the economy? We show that if firms and banks face collateral constraints, a housing bubble initially raises credit demand by housing firms while leaving credit supply unaffected. It therefore crowds out credit to non-housing firms. If time passes and the bubble lasts, however, housing firms eventually pay back their higher loans. This leads to an increase in banks' net worth and thus to an expansion in their supply of credit to all firms: crowding-out gives way to crowding-in. These predictions are confirmed by empirical evidence from the recent Spanish housing bubble. In the early years of the bubble, non-housing firms reduced their credit from banks that were more exposed to the bubble, and firms that were more exposed to these banks had lower credit and output growth. In its last years, these effects were reversed.

SOVEREIGN DEFAULT, DOMESTIC BANKS AND EXCLUSION FROM INTERNATIONAL CAPITAL MARKETS

DOMINIK THALER

WORKING PAPER N° 1824

Why do governments borrow internationally, so much as to risk default? Why do they remain out of financial markets for a while after default? This paper develops a quantitative model of sovereign default with endogenous default costs to propose a novel and unified answer to these questions. In the model, the government has an incentive to borrow internationally due to a difference between the world interest rate and the domestic return on capital, which arises from a friction in the domestic banking sector. Since banks are exposed to sovereign debt, sovereign default causes losses for them, which translate into a financial crisis. When deciding upon repayment, the government trades off these costs against the advantage of not repaying international investors. After default, it only reaccesses international capital markets once banks have recovered, because only then are they able to efficiently allocate the marginal unit of investment again. Exclusion hence arises endogenously. The model is able to generate significant levels of domestic and foreign debt, realistic spreads, quantitatively plausible drops of lending and output in default episodes, and periods of post-default international financial market exclusion of a realistic duration.

EMPIRICAL ASSESSMENT OF ALTERNATIVE STRUCTURAL METHODS FOR IDENTIFYING CYCLICAL SYSTEMIC RISK IN EUROPE

JORGE E. GALÁN AND JAVIER MENCÍA

WORKING PAPER N° 1825

The credit-to-GDP gap, as proposed by the Basel methodology, has become the reference measure for the activation of the Countercyclical Capital Buffer (CCyB) due to its simplicity and good predictive power for future systemic crises. However, it presents several shortcomings that could lead to suboptimal decisions in many countries if it were used as an automatic rule for the activation of the CCyB. We study to what extent the purely statistical nature of the Basel methodology is responsible for these undesired effects by considering potential complementary credit gap measures that incorporate economic fundamentals. Specifically, we analyse the performance of two alternative (semi-) structural models that may account for these factors. We assess the proposed measures using time series data from the 70's for six European countries and compare them to the Basel gap. We find that the proposed models provide more accurate early warning signals of the build-up of cyclical systemic risk than the Basel gap, as well as lower upward

and downward biases after rapid changes in fundamentals. Nonetheless, results evidence heterogeneity in the ability from different models and specifications across countries to forewarn about future crises. This result evidences the differences in the financial cycles and their drivers across countries, and shows the importance in macroprudential policy of considering flexible approaches that adapt to national specificities.

CREDIT ALLOCATION ALONG THE BUSINESS CYCLE: EVIDENCE FROM THE LATEST BOOM BUST CREDIT CYCLE IN SPAIN

ROBERTO BLANCO AND NOELIA JIMÉNEZ

WORKING PAPER N° 1826

Using a dataset that merges information of loan applications from the Spanish CCR with firms' financial accounts, we find that during the great recession access to credit of firms with weak balance sheets deteriorated relative to other firms. However, contrary to the financial accelerator theory, we find that during the recovery phase after the latest recession access to credit of weaker firms did not improve relative to other firms and it even further deteriorated somewhat. We also provide empirical evidence that lending policies of banks with firms they are exposed to before the lending decision is taken are comparatively less sensitive to public information than those applied to new firms. This result, together with the positive correlation we find between firms' access to bank loans and the number of firms' bank credit relationships, might be linked to the existence of private information developed by banks through their interaction with borrowers. We also find that this relationship lending contributed to smooth credit contraction during the crisis.

THE RELEVANCE OF CURRENCY-DENOMINATION FOR THE CROSS-BORDER EFFECTS OF MONETARY POLICY

ISABEL ARGIMÓN

WORKING PAPER N° 1827

We analyze how a change in ECB monetary policy affects lending of internationally active banks, depending on whether the currency of the claim is the one of the counterparty country, using Spanish individual bank data. We analyse the transmission from an outward perspective, exploring how banks adjust their foreign lending denominated in local and in foreign currency to changes in monetary policy, both cross-border and also through their affiliates located in other countries. We find that non-bank private claims in local currency respond much less to the ECB monetary policy stance than claims in foreign currency. We also find that the spillover effects on cross-border lending denominated in foreign currency depend on banks' characteristics. When we broaden the analysis

to include claims to the public and the financial sector, the transmission of monetary policy is mainly through foreign currency loans, but bank heterogeneity plays a role in the transmission to local currency loans. In general, a tightening of the ECB monetary policy results in an increase in lending abroad. Exchange rate changes only affect foreign currency-denominated lending.

THE EFFECTS OF TAX CHANGES ON ECONOMIC ACTIVITY: A NARRATIVE APPROACH TO FREQUENT ANTICIPATIONS

SANDRA GARCÍA-URIBE

WORKING PAPER N° 1828

This paper studies the effects of anticipations of tax changes in the USA through the release of tax news in the media. I construct a new measure that captures the anticipation of tax bill approvals by exploiting the content of news in the US television. Since this information typically flows faster than standard measures of GDP, I propose a mixed frequency dynamic factor model to estimate both the economic activity latent factor and the effects of anticipated tax shocks on it. I find that onemonth-ahead media anticipations of tax approvals significantly stimulate current economic activity. This stimulation comes from anticipations of tax cuts.

THE G-20 REGULATORY AGENDA AND BANK RISK

MATÍAS CABRERA, GERALD P. DWYER AND MARÍA J. NIETO

WORKING PAPER N° 1829

Using international listed banks from the United States, Europe, Japan and China from 2004 to 2014, we analyse the effect on bank risk of some of the most relevant new elements of the prudential regulatory framework proposed in the wake of the Great Financial Crisis. We measure risk by a market measure, namely the volatility of banks' stock returns. We also examine the effect of government support during the financial crisis and of designation as a G-SIB. We find little support for an association with government support and none for a negative relationship. We find support for a positive effect of designation as a G-SIB on risk. We find a positive association with securities trading and a negative association with capital. Banks' chosen liquidity is unimportant for this measure of risk.

CHINESE EXPORTS AND NON-TARIFF MEASURES: TESTING FOR HETEROGENEOUS EFFECTS AT THE PRODUCT LEVEL

JACOPO TIMINI AND MARINA CONESA

WORKING PAPER N° 1830

Concerns about a possible turn of the global trade policy agenda are on the rise. Indeed, even if tariffs are at a

historically low levels, non-tariff measures (NTMs) play an important — and growing — role in global trade policy. In this paper, using a recently released database on NTMs (UNCTAD), and relying on a gravity model, we focus on Chinese exports with two aims in mind: the first is to test for possible heterogeneous effects of different type of NTMs. The second is to verify empirically whether NTMs have larger negative effects for specific set of goods, i.e. final goods. We find that 1) technical NTMs tend to have positive effects on trade flows, whereas non-technical NTMs do not have clear effects at the aggregate level and 2) NTMs have heterogeneous effects at the product level: in the case of final goods, non-technical NTMs have negative and significant effects.

HOUSEHOLDS' BALANCE SHEETS AND THE EFFECT OF FISCAL POLICY

JAVIER ANDRÉS, JOSÉ E. BOSCA, JAVIER FERRI AND CRISTINA FUENTES-ALBERO

WORKING PAPER N° 1831

Using households' balance sheet composition in the Panel Survey of Income Dynamics, we identify six household types. Since 1999, there has been a decline in the share of patient households and an increase in the share of impatient households with negative wealth. Using a six-agent New Keynesian model with search and matching frictions, we explore how changes in households' shares affect the transmission of government spending shocks. We show that the relative share of households in the left tail of the wealth distribution plays a key role in the aggregate marginal propensity to consume, the magnitude of fiscal multipliers, and the distributional consequences of government spending shocks. While the output and consumption multipliers are positively correlated with the share of households with negative wealth, the size of the employment multiplier is negatively correlated. Moreover, our calibrated model delivers jobless fiscal expansions.

ADAPTING LENDING POLICIES WHEN NEGATIVE INTEREST RATES HIT BANKS' PROFITS

ÓSCAR ARCE, MIGUEL GARCÍA-POSADA, SERGIO MAYORDOMO AND STEVEN ONGENA

WORKING PAPER N° 1832

What is the impact of negative interest rates on bank lending and risk-taking? To answer this question we study the changes in lending policies using both the Euro area Bank Lending Survey and the Spanish Credit Register. Banks whose net interest income is adversely affected by negative rates are concurrently lowly capitalized, take less risk and adjust loan terms and conditions to shore

up their risk weighted assets and capital ratios. These banks also increase non-interest charges more. But, importantly, we find no differences in banks' credit supply or standard setting, neither in the Euro area nor in Spain. These findings suggest that negative rates do not necessarily contract the supply of credit and that the so-called "reversal rate" may not have been reached yet.

CORPORATE COST AND PROFIT SHARES IN THE EURO AREA AND THE US: THE SAME STORY?

VICENTE SALAS, LUCIO SAN JUAN Y JAVIER VALLÉS

WORKING PAPER N° 1833

This paper presents evidence of how the shares of labour and capital costs and profits in the gross value added of corporate sectors of France, Germany, Italy, Spain and the US varied between 1995 and 2016, and seeks to explain the differences between countries and how they have developed over time. The descriptive evidence does not support the hypothesis of a convergence in the composition of the countries' corporate gross value added in the period, either within the euro area or between Europe and the US, nor is there evidence of a generalised downward trend in the share of labour costs over time. The parallel upward trend in the corporate profit share of the US and Germany between 2000 and 2016 stands out, with German corporate profit share consistently above that of the US. The evidence presented here supports the claim made by other studies that increasing corporate market power is the main driver of changes in the composition of gross value added over time in the case of the US. In the euro area countries, labour and capital shares are also sensitive to changes in the relative input prices of labour and capital (consistent with an inferred elasticity of substitution between labour and capital in production that is less than one, compared with the inferred value of one for the US). Finally, to explain the high and increasing German corporate profit share, it is necessary to account for the sustained comparative production cost advantage of German corporations.

RECENT OCCASIONAL PAPERS **[LINK TO OCCASIONAL PAPERS PAGE](#)**

THE SPANISH SURVEY OF HOUSEHOLD FINANCES (EFF): DESCRIPTION AND METHODS OF THE 2014 WAVE

OLYMPIA BOVER, LAURA CRESPO, CARLOS GENTO AND ISMAEL MORENO
OCCASIONAL PAPER N° 1804

The Spanish Survey of Household Finances 2014 (EFF2014) provides detailed information on the income,

assets, debt and spending of Spanish households referring to end-2014. Together with the previous waves of 2002, 2005, 2008 and 2011, the EFF2014 enables the analysis of two complete phases of the economic cycle, which have had a strong impact on the financial position of Spanish households. This paper provides a detailed description of the most relevant methodological aspects in the design and implementation of this fifth edition: the sample design, the questionnaire, the data collection process, the validation of the data, the computation of weights and the imputation procedures. Important characteristics also present in this wave are the oversampling of wealthy households and the panel component of the sample.

THE MICROECONOMIC ORIGINS OF THE SPANISH BOOM

ENRIQUE MORAL-BENITO

OCCASIONAL PAPER N° 1805

The Spanish growth experience over the 1995-2007 period was characterized by the remarkable surge in employment and investment as well as the dismal evolution of productivity. These macroeconomic fluctuations were coupled with an unprecedented credit boom fueled by a housing bubble. This article reviews a line of research that investigates the connection between these developments using micro-level data on Spanish firms and banks. The evidence suggests that the abundant availability of credit, partially induced by the real estate bubble, and its propagation through the Spanish production network explain a sizable part of the massive accumulation of labor and capital. Also, the deterioration in the allocation of resources across firms is the main responsible of the fall in aggregate productivity. The allocation of credit across firms and municipalities, the softening of banks lending standards, and the low productivity of Spanish firms can partly explain this deterioration.

LA DESIGUALDAD DE LA RENTA, EL CONSUMO Y LA RIQUEZA EN ESPAÑA

BRINDUSA ANGHIEL, HENRIQUE BASSO, OLYMPIA BOVER,
JOSÉ MARÍA CASADO, LAURA HOSPIDO, MARIO IZQUIERDO,
IVAN A. KATARYNIUK, AITOR LACUESTA, JOSÉ MANUEL MONTERO
AND ELENA VOZMEDIANO

OCCASIONAL PAPER N° 1806

This document analyses the level of inequality in Spain and how it evolved over the course of the past crisis and the early stages of the current recovery. To this end, it

first introduces the various dimensions of wage, income, consumption and wealth inequality, and analyses how they have developed. The analysis shows less wage dispersion in Spain than in other comparable economies, even after the crisis years, while the surge in unemployment during the period resulted in a high level of inequality in per capita income. The level of inequality in Spain is more moderate when total gross household income is analysed, decreasing during the crisis as a result of pensions developing more favourably than other sources of income, in conjunction with young people delaying setting up home. Inequality in per capita consumption rose during the crisis, particularly as a result of a decrease in expenditure on consumer durables by low-income households. Wealth inequality exceeds income inequality and increased during the downturn as a result of financial assets outperforming real assets. Nevertheless, Spain's wealth inequality is moderate by international standards, as ownership of real assets is more widespread than in other countries. The way inequality has evolved during the early stages of the current economic recovery shows that falling unemployment has enabled a reduction in wage income inequality, as well as in per capita income inequality, albeit to a lesser extent.

INSTITUTIONAL AND ECONOMIC DETERMINANTS OF REGIONAL PUBLIC DEBT IN SPAIN

MAR DELGADO-TÉLLEZ AND JAVIER J. PÉREZ

OCCASIONAL PAPER N° 1807

We analyze from an empirical point of view the evolution and determinants of Spanish regional public debt. Spain offers an interesting case study because of its high level of fiscal decentralization, implemented gradually during the past four decades, the parallel entry into force of a number of national fiscal rules in that period, and the heterogeneity of its regions, both in terms of economic fundamentals and some institutional features. Our main findings are the following: i) regional governments' fiscal policies reacted to public debt increases, on average, over the sample of study; ii) fiscal rules played a limited role in controlling debt surges, being only marginally effective in some instances, like high debt situations; iii) a higher degree of regional fiscal co-responsibility tends to be linked to more subdued debt dynamics; iv) market-discipline indicators have encouraged some discipline at the regional level, and v) regional non-standard (commercial) debt surges present explanatory power on the standard measure of public debt.

FINANCIAL STABILITY REVIEW

The Financial Stability Review is a half-yearly journal published by the Banco de España that aims to act as a platform for communication and dialogue regarding issues related to financial stability, with a particular focus on prudential regulation and supervision. Its board of editors comprises internal and external professionals. All articles appearing in the journal, which may be authored by Banco de España staff or researchers from other institutions, are refereed by at least one member of the board of editors.

COMPLETION OF THE BASEL III POST-CRISIS REFORMS: OVERVIEW AND ANALYSIS OF KEY FEATURES

REBECA ANGUREN, CHRISTIAN CASTRO AND DANAE DURÁN
FINANCIAL STABILITY REVIEW, 34, MAY 2018, 7-33

In December 2017, the Basel Committee published the final revisions to the Basel III framework with the aim of reducing the high variability observed in risk-weighted assets. To this end, substantial changes were made to several regulatory standards, including the two available approaches (the standardised approach and the internal ratings-based approach) for credit risk, the leverage ratio, and the operational risk and credit valuation adjustment frameworks. In addition, an aggregate floor to risk-weighted assets based on the standardised methods was added, which provides a robust, risk-sensitive backstop compared with the requirements obtained under internal approaches. In parallel, the Basel Committee completed its review of the prudential framework applicable to sovereign exposures, without changes to the current treatment at this stage. The article provides a description of all these developments, along with detailed explanations of their key features, rationale and workings.

BANK BRANCH CLOSURE AND ACCESS TO CASH IN SPAIN

CONCHA JIMÉNEZ GONZALO AND HELENA TEJERO SALA
FINANCIAL STABILITY REVIEW, 34, MAY 2018, 35-56

From 2008 to 2017, the number of bank branches in Spain has declined by 17,873 to 27,706, owing both to the consolidation of the banking system and its efficiency improvement-oriented policy. That said, in

2017 Spain continued to be one of the euro area countries with the highest number of branches per inhabitant. At the end of that year, 4,109 municipalities – in which 2.7% of the Spanish population live – lacked a branch. The closure of bank branches does not necessarily entail the financial exclusion of part of the population, as there are alternative means for access to banking services, such as the use of electronic banking. However, the branch network adjustment hinders access by the population to cash, which banks seek to remedy by promoting other access facilities such as off-site ATMs and mobile branches. As a result, the proportion of the Spanish population lacking nearby cash-access points is estimated at approximately 1.96% of the national total.

BANKING CONCENTRATION AND COMPETITION IN SPAIN: THE IMPACT OF THE CRISIS AND RESTRUCTURING

PAULA CRUZ-GARCÍA, JUAN FERNÁNDEZ DE GUEVARA AND JOAQUÍN MAUDOS
FINANCIAL STABILITY REVIEW, 34, MAY 2018, 57-76

This article analyses recent developments in banking concentration and competition in Spain, focusing on the impact of the recent restructuring and consolidation of the industry, with information at the provincial level. The concentration indicators presented show that, in principle, concentration has increased since 2008, although when in the calculation of net income regard is had to the cost attributable to credit risk, the final conclusion is that such income is not substantially different from that existing pre-crisis. Furthermore, market concentration at the national level masks very different concentration situations provincially, where banking concentration levels are particularly high in some cases. Accordingly, the analysis of banking concentration and competition should take into account the relevant geographical market, which is generally closer to the provincial than the nationwide level.

FINANCIAL STABILITY CONSEQUENCES FOR THE EXPECTED CREDIT LOSS MODEL IN IFRS 9

ANTONIO SÁNCHEZ SERRANO
FINANCIAL STABILITY REVIEW, 34, MAY 2018, 77-95

The article presents the approach for the accounting of credit losses by banks defined by International Financial

Reporting Standard 9 (IFRS 9), in force since 1 January 2018. The new model aims to reflect in current financial statements expected future credit losses, unlike the previous model it has replaced, where accounting was based on incurred losses. Overall, the more extensive recognition of expected credit losses as and when they arise will contribute favourably to financial stability. However, the paradigm shift in accounting for credit losses calls for reflection on other supervisory instruments such as supervisory stress tests and the use of simple credit risk-estimation models. It likewise poses the advisability of better and more harmonised disclosures by banks, the monitoring of how the new provisions evolve over the cycle and ongoing interaction between accounting standards and the regulatory framework.

SOVEREIGN BOND-BACKED SECURITIES AS EUROPEAN REFERENCE SAFE ASSETS: A REVIEW OF THE PROPOSAL BY THE HLTF-ESRB

JAVIER MENCÍA AND MARÍA RODRÍGUEZ-MORENO
FINANCIAL STABILITY REVIEW, 34, MAY 2018, 97-110

A High-Level Task Force (HLTF) of the European Systemic Risk Board (ESRB) has recently put forward a proposal aimed at increasing the supply of low-risk financial assets in Europe through the securitisation of national euro area sovereign debt. This article reviews the proposal from different angles, including regulatory and financial stability considerations, and current market practices relating to safe assets. The authors conclude that the proposal has some positive elements that could help foster financial integration in the euro area, although it poses challenges relating to financial stability in times of stress. Against this background, it is recommended that future steps to develop the project should better acknowledge its attendant pros and cons.

THE RISK OF CLIMATE CHANGE AND FINANCIAL INSTITUTIONS: INTERNATIONAL CHALLENGES, MEASURES AND INITIATIVES

JOSÉ MANUEL MARQUÉS SEVILLANO AND LUNA ROMO GONZÁLEZ
FINANCIAL STABILITY REVIEW, 34, MAY 2018, 111-134

The 2015 Paris Agreement acknowledged the need to mobilise financial flows towards investments supportive of a low-greenhouse-gas-emissions economy and that are environmentally beneficial, what is known as “green finance”. The authors explain the debate on the new demands climate change places on the financial system as a whole and on the banking system in particular, so that they may join the fight to minimise damages and support preventive initiatives. An analysis is made of the extent to which the financial markets and banks

acknowledge and act in consequence of the risks to which climate change exposes them, and the public and private responses triggered by the fight against it. The main national and international measures geared to improving the perception of climate risk and to helping financial markets and intermediaries identify green projects are also reviewed. The authors conclude that climate change has not been fully taken on board by the financial sector and they identify several obstacles preventing the mobilisation of funds for green projects, although the overall assessment at the international level reveals favourable developments in this respect.

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SERIEs BEST PAPER AWARD

The paper “[Are there alternatives to bankruptcy? A study of small business distress in Spain](#)”, coauthored by [Miguel García-Posada](#) and [Juan Mora-Sanguinetti](#), has been given the award for the best paper published in SERIEs in the period 2014-2018.

26th FINANCE FORUM AWARD

The paper “[Adapting Lending Policies When Negative Interest Rates Hit Banks' Profits](#)”, coauthored by [Óscar Arce](#), [Miguel García-Posada](#), [Sergio Mayordomo](#) and [Steven Ongena](#), has been recognized with the SANFI Award to the best paper on Banking of the 26th Finance Forum, held in Santander on 5-6 July 2018.

POLITICAL SCIENCE RESEARCH AND METHODS BEST PAPER AWARD

The paper “[The effect of electoral systems on voter turnout: Evidence from a natural experiment](#)”, by the Banco de España researcher [Carlos Sanz](#), has been honored with the 2017/2018 Political Science Research and Methods Best Paper Award, given to the best paper published in the journal during the year.

RECENT CONFERENCES

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5th WORLD BANK - BANCO DE ESPAÑA RESEARCH CONFERENCE

MADRID, 4-5 JUNE 2018

On June 4-5, the Banco de España hosted the conference “[Macroeconomic Policies, Output Fluctuations, and Long-term Growth](#)”, jointly organized with The World Bank. The goal of the conference was to bring together academics and policy makers to discuss on the effects of fiscal or monetary policies on potential growth and the business cycle. In particular,

the Conference looked for new evidence on the relationship between monetary, tax and expenditure policies and business cycles, with special attention to the implications for long-term growth. How different fiscal alternatives are likely to affect labor productivity and growth, and how they can be coordinated with other macroeconomic policies to improve social welfare were also assessed.

[Conference programme >](#)

SECOND BANCO DE ESPAÑA ANNUAL RESEARCH CONFERENCE (JOINTLY WITH IFS, LONDON)

MADRID, 3-4, SEPTEMBER 2018

On 3-4 September 2018, the Banco de España hosted its Second Annual Research Conference at its Madrid headquarters. This year the conference was in conjunction with IFS, London, and the theme was Taxes and Transfers. Leading scholars such as [Richard Blundell](#), [Vitor Gaspar](#), [Mikhail Golosov](#), [Roger Gordon](#), [Rachel Griffith](#), [Henrik Kleven](#), [Camile Landais](#), [Guy Laroque](#), [Gaetan Nicodeme](#), [Florian Scheuer](#), [Stefanie Stantcheva](#), [Kjetil Storesletten](#), [Gianluca Violante](#), and [Owen Zidar](#), among others, participated.

[Conference programme >](#)

WORKSHOP PROGRAMA BANCO DE ESPAÑA-EXCELENCIA EN EDUCACIÓN E INVESTIGACIÓN EN ECONOMÍA MONETARIA, FINANCIERA Y BANCARIA 2016-2018

MADRID, 27 SEPTEMBER 2018

In 2015 the Banco de España launched a programme of research grants in macroeconomics, monetary economics, finance and banking. Under this programme, designed on a long-term basis, the Banco de España signed several collaboration agreements with universities and research institutions in order to develop research projects in areas of interest for central banks. In this workshop, the research projects carried out within the programme were presented.

[Conference programme >](#)

IV SEMINAR IN ECONOMIC HISTORY

MADRID, 11 OCTOBER 2018

On October 11th the Banco de España will host the IV Seminar in Economic History. As on previous occasions, research projects on Economic History financed by the Banco de España, together with other papers on Spanish and international economic history will be presented. Scholars are invited to submit their proposals before June 15th.

[Conference programme >](#)

CONFERENCE ON THE NEW BANK PROVISIONING STANDARDS: IMPLEMENTATION CHALLENGES AND FINANCIAL STABILITY IMPLICATIONS

MADRID 18-19 OCTOBER 2018

The Banco de España, the Centre for Monetary and Financial Studies (CEMFI) and the Financial Stability Institute (FSI) of the Bank for International Settlements (BIS) organized this conference, that was held at the Banco de España's headquarters in Madrid on 18-19 October 2018. International Financial Reporting Standards 9 (IFRS 9) under IAS and Current Expected Credit Losses (CECL) under US GAAP constitute new references for banks to determine the way provisions for credit risk losses will be calculated. The conference was designed to the interest of all key players affected by the introduction and the implementation of the new provisioning standards.

[Conference programme >](#)

RECENT ECONOMIC RESEARCH SEMINARS

[LINK TO SEMINARS PAGE](#)

PEER EFFECTS IN RISKY CHOICES AMONG ADOLESCENTS

MELANIE LÜHRMANN

ROYAL HOLLOWAY, UNIVERSITY OF LONDON,
09 MAY 2018

THE FALL IN GERMAN UNEMPLOYMENT: A FLOW ANALYSIS

JEAN-MARC ROBIN

SCIENCES PO AND UCL,
23 MAY 2018

FIRMS' CREDIT RISK AND THE ONSHORE TRANSMISSION OF THE GLOBAL FINANCIAL CYCLE

JOSÉ M^a SERENA

BANK FOR INTERNATIONAL SETTLEMENTS,
25 MAY 2018

TEORÍAS DEL DINERO Y FUTURO DEL EURO

MIGUEL OTERO

REAL INSTITUTO ELCANO,
29 MAY 2018

HOW DO FIRMS GROW? THE LIFE CYCLE OF PRODUCTS MATTERS

SARA MOREIRA

NORTHWESTERN UNIVERSITY,
30 MAY 2018

MONETARY POLICY AND INEQUALITY UNDER LABOR MARKET FRICTIONS AND CAPITAL-SKILL COMPLEMENTARITY

JUAN DOLADO

EUROPEAN UNIVERSITY INSTITUTE,
06 JUNE 2018

DOWNWARD NOMINAL WAGE RIGIDITY AND STATE-DEPENDENT GOVERNMENT SPENDING MULTIPLIERS

WEI SHEN

OKLAHOMA STATE UNIVERSITY,
07 JUNE 2018

COMMODITY PRICING MODELS

EDUARDO SCHWARTZ

UCLA,
11 JUNE 2018

SHOCKS VS MENU COSTS: PATTERNS OF PRICE RIGIDITY IN AN ESTIMATED MULTI-SECTOR MENU-COST MODEL

HERVÉ LE BIHAN

BANQUE DE FRANCE,
13 JUNE 2018

THE CENTER AND THE PERIPHERY: TWO HUNDRED YEARS OF INTERNATIONAL BORROWING CYCLES

GRACIELA KAMINSKY

GEORGE WASHINGTON UNIVERSITY,
20 JUNE 2018

CAN CURRENCY COMPETITION WORK?

JESÚS FERNÁNDEZ VILLAVERDE

UNIVERSITY OF PENNSYLVANIA

28 JUNE 2018

(THE STRUGGLE FOR) REFUGEE INTEGRATION INTO THE LABOR MARKET: EVIDENCE FROM EUROPE

LUIGI MINALE

UNIVERSIDAD CARLOS III DE MADRID,

12 SEPTEMBER 2018

UNINSURED UNEMPLOYMENT RISK AND OPTIMAL MONETARY POLICY

EDOUARD CHALLE

ECOLE POLYTECHNIQUE,

19 SEPTEMBER 2018

COMPETITION, GEOGRAPHIC PROXIMITY AND PRICING IN THE RETAIL BANKING INDUSTRY

SANTIAGO CARBÓ

CUNEF,

26 SEPTEMBER 2018

PEOPLE

NEW FACES



JULIO GÁLVEZ
Financial Analysis Division

JULIO GÁLVEZ joined the Financial Analysis Division of the Banco de España in September 2018, after obtaining his Ph.D. in Economics from CEMFI, Madrid. He also holds a MPhil in Economics and Finance from CEMFI, and an undergraduate degree in Business from the University of the Philippines. Before joining the Banco de España, he was a teaching assistant of Econometrics at the graduate level.

Julio's research interest lies in the field of financial economics. In one of his papers, "Household portfolio choices and nonlinear income risk", he develops a semi-structural model to investigate life-cycle household portfolio choice decisions under nonlinear labor income risk. He finds that

low- and high-income households exhibit differential participation and portfolio responses with respect to large income shocks. For this paper, Julio was awarded the Best Ph.D. Paper prize at the 2017 CEPR European Conference in Household Finance. He has also studied cyclical timing behavior of hedge funds, and the asset pricing implications of conditional asymmetries in the European sovereign-bank nexus.

In his future research, Julio plans to focus on studying other aspects of household finance, which include housing markets and the nature of participation costs.

Research page: <https://www.cemfi.es/~galvez/>



DMITRY KHAMETSHIN
Monetary Policy Division

DMITRY KHAMETSHIN joined the Monetary Policy Division at the Banco de España in October 2018. He holds a Ph.D. in Economics from Universitat Pompeu Fabra (December 2017), as well as MRes in Business (Finance) from Tilburg University and MSc in Economics and Finance from the Barcelona Graduate School of Economics. Dmitry obtained his BA from Higher School of Economics in Russia. During his post-graduate studies, he was a teaching assistant in courses of statistics and econometrics.

Dmitry does empirical research in the field of banking, monetary policy, and financial stability. In one of his projects, Dmitry studied the effects of eligibility of assets in the central bank refinancing operations on liquidity premiums. The results demonstrate sizable effects of eligibility decisions on pricing of

collateralizable assets. In a different project, Dmitry has also studied the relationship between asset encumbrance of banks and their credit risk - from both a theoretical and an empirical perspective. In his other work, Dmitry analyzes the effects of central bank interventions in the derivative FX markets in an emerging economy. The results suggest that by acting as a hedger of last resort, a central bank can affect banks credit supply and partially alleviate the adverse effects of global financial cycles.

In his ongoing projects, Dmitry studies the diversity-diversification trade-off of banks portfolio and credit decisions as well as its implication for liquidation risk and financial stability.

Research page: <https://dmitrykhametshin.github.io/>



PAU ROLDAN

Structural Analysis Division

PAU ROLDAN joined the Structural Analysis Division at the Banco de España in September 2018. He holds a Ph.D. in Economics from New York University (May 2018), a Master of Research from Universitat Pompeu Fabra (2012), and a Master of Science from the Barcelona Graduate School of Economics (2011). Prior to his graduate studies, Pau obtained a B.A. (Licenciatura) in Economics from Universitat Pompeu Fabra (2010). For many years throughout his studies at UPF and NYU, he was a teaching assistant in courses in statistics, microeconomics, and macroeconomics.

Pau does applied theory research in various topics of macroeconomics, with specialization in firm dynamics, search theory, and economic growth. His work is motivated by micro-level empirical evidence, which is seen through the lens of quantitative heterogeneous-agent macro models in order to understand the implications at the aggregate level. In his work "Firm Dynamics and Pricing under Customer Capital Accumulation", he proposes a search-and-matching model of endogenous price markups as an engine of firm growth, motivated by the empirical observation that a large share of firm growth is due to demand accumulation. Using a large panel of micro-level

pricing data from the retail sector in the United States, he finds that the desire by firms to accumulate customers can lead to very different responses to aggregate supply and demand shocks across firms of different sizes. In particular, the proposed mechanism gives rise to procyclicality in markups, and additional amplification and persistence, particularly for smaller firms. In a separate paper, called "Advertising, Innovation, and Economic Growth" (joint with Laurent Cavenaile from the University of Toronto), Pau studies how advertising decisions may impact firms' desire to conduct R&D and, ultimately, how these may affect economic growth as well as the design of industrial policies, such as targeted R&D subsidies.

Currently, Pau is exploring the effects of foreign competition on domestic firms' markups, and studying how these can relate to the incentives of firms to perform innovative activities. The goal of this line of research is to understand the dynamic effects of trade liberalization episodes on markups, innovation, and economic growth, and to provide recommendation for the design of foreign policy.

Research page: <http://pauoldan.weebly.com>

ANNOUNCEMENTS

JOB OPENINGS FOR PhD ECONOMISTS

The Banco de España is hiring in the job market. The Bank is interested in individuals with strong modeling and empirical skills to conduct high-quality policy-oriented research, to produce reports for the Bank's senior management and to write for the Bank's publications. The application deadline is 21 November 2018.

[Job details at JOE >](#)

UPCOMING CONFERENCES

[LINK TO CONFERENCES PAGE](#)

BANCO DE ESPAÑA-SUERF CONFERENCE: FINANCIAL DISINTERMEDIATION AND THE FUTURE OF THE BANKING SECTOR

MADRID, 30 OCTOBER 2018

The Banco de España and SUERF are jointly organizing a conference entitled "Financial desintermediation and the future of the banking sector", that will take place in the Banco de España headquarters on 30 October

2018. The event will bring together academics, practitioners and policymakers to discuss the process of financial desintermediation and the role of monetary policy and financial regulation, the future of the banking sector and the Capital Markets Union.

[Conference programme >](#)

CONFERENCE ON RISK, VOLATILITY AND CENTRAL BANKS' POLICIES

MADRID, 29-30 NOVEMBER 2018

The Banco de España will organize a joint conference with the Central Bank Research Association (CEBRA) on "risk, volatility and central banks' policies", on 29-30 November in Madrid. The conference aims to cover a broad range of topics related to risk and volatility. The Banco de España and CEBRA chose this topic, taking into account the growing awareness of the importance of risk and market volatility for both monetary policy and financial stability.

[Conference programme >](#)

The Banco de España *Research Update* is edited by the Directorate General Economics, Statistics and Research of the Banco de España.

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